# DEMONSTRATION IN FOLLOW UP: EPSDT

## Pierce County, Washington

## Final Evaluation Report
## (June 1977-November 1979)

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Prepared by:
Health Services Research Institute
The University of Texas Health Science Center
at San Antonio

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# DEMONSTRATION IN FOLLOW-UP: EPSDT

# PIERCE COUNTY, WASHINGTON

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November 30, 1979

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# EXECUTIVE SUMMARY

This is the final report of the Health Services Research Institute on the Pierce County, Washington, EPSDT Demonstration project. It is a cumulative report covering the entire operational phase of the project, from June 1, 1977 to July 31, 1979. The project will also submit a less quantitative but more descriptive report which will provide more details on operational methodology.

This project has been of significance both nationally, because of its reliance on private sector screeners, and locally, because of its potential effects on state EPSDT planning. Over 80% of the screens reported to the project were done in the private sector, and the project's careful research orientation made this one of the most thoroughly evaluated programs of this type in the country. The Carter administration's initial intention to rely heavily on the private sector for its Child Health Assessment Plan made such an evaluation essential, and the impact of our two interim Pierce County reports can already be seen on recent revisions of the CHAP proposal.

The major thrust of this project throughout its approximately two year duration was "to demonstrate the effectiveness of a follow-up system in assuring that children found to have problems during screening receive diagnosis and treatment". The project most effectively accomplished this objective. It developed a follow-up (case monitoring) system from identification of eligibles screened, to treatment and treatment completion, including forms, client/provider feedback, full-time case monitors, and a supporting data processing component. The project incorporated the results of this demonstration in a comprehensive state EPSDT plan, and this document should be considered to be one of the most important outcomes of this project

## Summary of Findings

1. In a private sector based screening program without case finding, physicians recruit children to EPSDT through routine sick visits.

When any Medicaid provider is authorized to do EPSDT screening, as in Washington, the sick visit offers great potential as a case finding device. Statistics* show that most children under six visit a physician at least once a year, and screening in conjunction with these sick visits can greatly reduce the amount of explicit outreach that is required. Almost 50% of the eligible children in Pierce County were screened during 1978, even though no explicit outreach was attempted.

2. Screening during sick visits, however, did not find the preventive health conditions that EPSDT was intended to discover.

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*National Center for Health Statistics, "Physician Visits, Volume and Interval since Last Visit, United States - 1975." Vital and Health Statistics, Series 10, Number 128.

Although problems were reported from 63.4% of screens - an average of 0.97 problems per screen - the true EPSDT problem finding rate was actually much lower. At least 43.3% of these problems were of such a nature that they almost certainly caused the physician visit at which the screen occurred, and another 36.5% may have caused the visit. Only about a fifth (20.2%) of the reported problems were definitely found during the screen, and so the true problem finding rate was somewhere between 0.22 and 0.52 problems per screen.

3. Effective and enforceable quality standards are essential for EPSDT, particularly in a private sector program.

Private sector screeners were seriously deficient in reporting critical preventive health conditions such as vision, hearing, dental and developmental problems. Dental problems, for example, were reported from only 4.9% of children over three, and hearing problems from only 1.5% (all ages). The project hired a dental hygienist to investigate the low dental rate, and she found problems in 56.0% of screens. These problems should be the core of a preventive health activity, yet they were not widely reported, by the private sector screeners in Pierce County.

Individual screeners varied enormously both in their overall problem finding rates and in their results for specific conditions. These differences were not due to underlying patient characteristics - as best we can determine - so they must be due to differences in the way screening was done or reported. There are currently no quality standards for EPSDT, and these must be developed and enforced if EPSDT is to be made effective. The problem is particularly serious when screens are done during sick visits. Parents of children screened during sick visits are unlikely to understand the need for routine preventive health check-ups, and screeners are unable to complete essential tests reliably. The sick visit is useful as a case finding device but only if the screen itself is scheduled for a later visit.

4. Health Department well-child screening was more effective than the private sector in finding preventive health conditions, and as a result it created more work for case monitors.

The Tacoma-Pierce County Health Department screened primarily during well-child visits, and its finding rates for dental, vision, hearing and developmental problems were two to seven times higher than those of private sector physicians. Although the private sector reported many more problems than did TPCHD, the number of problems that were definitely discovered at screening was only half as high.

TPCHD generally did not treat problems found at screen while physicians did, and it, therefore, produced more problems requiring case follow-up. On a per screen basis, physicians generated 0.19 problems that needed treatment initiation after screening, while TPCHD generated 0.74. Physicians reported 0.22 problems that needed extended monitoring while TPCHD reported 0.39. In general, screening in the private sector greatly facilitated paper compliance with federal penalty regulations, but in Pierce County it was much less effective as EPSDT than was public sector well-child screening.

5. In the year after first screening, EPSDT clients had greatly increased office costs but reduced hospital, emergency room and "other" costs. Total costs were six percent less than they might have been without screening.

A detailed analysis of approximately 1300 Medicaid profiles showed that screened children were higher utilizers of Medicaid services both before and after screening than were unscreened children. After screening, however, EPSDT clients showed a marked shift away from hospitalization and emergency room care and into office visits. Total costs for unscreened children increased by 9.8% in the second year, while they rose by only 3.5% for EPSDT clients.

6. Case monitoring increased the proportion of problems reaching and completing treatment, but the overall effect was small because physicians initiated treatment for most problems during the screen itself.

One of the potential benefits of a physician based screening program is that the majority of problems can be diagnosed and given at least initial treatment during the screen itself. In this project, 76.9% of experimental problems were treated at screen and 37.9% were resolved without the need for additional visits. Use of private sector physicians for screening greatly reduces the need for case monitoring, at least in a project where most of the reported problems are easily resolvable by pediatricians or general practitioners.

The project used a controlled before-after experimental design to show the effects of case monitoring on treatment initiation and completion rates. Without case monitoring, 84.3% of control group problems received at least initial treatment, and active follow-up increased this to 93.7%. Without case monitoring, 70.0% of problems were completely resolved, compared to 82.6% with monitoring. The effects of monitoring are obviously more dramatic when we exclude problems fully treated at screen.

7. The costs of case monitoring become quite high when we apply them only to "extra" problems resolved. States should consider concentrating follow-up on the potentially most serious problems.

In this project, case monitoring cost an average of $20.79 per screen, which appears quite reasonable considering the large number of problems reported. (The cost of monitoring was almost the same as the cost of screening-$21.54). The cost per problem requiring treatment after screening was $30.59. Evaluation of treatment results for the control group, however, showed that many of these problems would have been resolved without any cost at all (that is, without case monitoring); and if we look just at the "extra" resolutions, the cost was $99.34. Limited case monitoring to the first visit after screening was slightly less cost effective than extended monitoring.

Monitoring resources are usually scarce and should be concentrated where the potential benefit is greatest.

8. Case monitoring increased the proportion of children having recommended rescreens, but monitoring of a periodicity schedule of five screens per year is not feasible.

Infants first screened during the project's control phase received 64.4% of their recommended rescreens, while those given full follow-up assistance received 74.1% of theirs. For children over one, monitoring raised the rescreen rate from 37.1% to 40.4%. The cost per "extra" rescreen obtained was over $100.

A periodicity schedule requiring screening every two months can only be monitored using a manual tickler system, and this is not feasible for a statewide system. Even on-line access to a computer is unlikely to succeed unless forms are processed quickly.

# SECTION ONE

# INTRODUCTION

## CHAPTER 1

## PROJECT BACKGROUND AND OBJECTIVES

The Congress of the United States authorized creation of the Early, Periodic Screening, Diagnosis and Treatment program (EPSDT) in 1967, although very few states began implementing it until 1972. The program was intended to provide preventive health screening for Medicaid eligible children under 21. Five major sub-systems were identified: namely, (1) case finding to bring eligible children into the program; (2) screening; (3) diagnosis; (4) treatment; and (5) case monitoring to assist children with problems to obtain treatment. Periodic rescreens were also required.

The Washington State Department of Social and Health (DSHS) began its EPSDT program in November, 1972.* Responsibility for the program was, and continues to be, divided between the Community Services and Health Services Divisions. The former is responsible for case finding, while the latter, through the Office of Medical Assistance**, is responsible for setting standards, monitoring the program, and paying the providers. The Maternal and Child Health Unit of the Office of Community Health Services in the Health Services Division was responsible in the beginning for implementing and monitoring the program in local health departments. In the early years, health departments performed about half of the screens in Washington.

By late 1974, this program had not developed sufficiently to meet federal expectations, and imposition of federal penalty regulations appeared possible. The Secretary of DSHS was concerned about the ultimate cost of an expanded program and was particularly concerned that EPSDT might generate additional treatment costs for the Medicaid system. The Office of Community Health Services learned that federal funds might be available to study this question, and the Health Services Research Institute of San Antonio was eventually invited in to assist with project planning. After several delays, the project was finally funded effective December 1, 1976.

As stated in the original grant application:

> "The primary purposes of this project will be to collect program and cost information relative to the existing EPSDT program and to examine the impact of introducing an innovative case monitoring and follow-up model. The innovative model will take the form of full-time Community Health Workers with the assigned responsibility of ensuring the continued

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*The following paragraphs draw heavily on comments made by Eileen Keith to HCFA on November 2, 1979.

**The Office of Medical Assistance continues to fulfill these functions, although it has recently been moved out of the Health Services Division.

participation of children who have been screened, i.e., keeping appointments for diagnosis and treatment, showing for rescreening at periodic intervals, etc. Enhancing existing screening provider efforts at following-up of screened children, this model will include frequent telephone and personal contacts with parents of the children, and offers of transportation when necessary. Specifically, the objectives are:

1. To introduce an agressive follow-up program from point of screening that will maximize the number of children brought through prescribed diagnosis and treatment to a point of problem resolution;

2. To implement a reporting system that will provide information about the types of problems identified, diagnoses made, treatment prescribed, problems resolved and costs for diagnosis and treatment;

3. To determine the most cost effective procedure for case monitoring and follow-up, comparing existing and innovative models."

Case finding was specifically excluded from the design, both because it was already being tested elsewhere* and because the state felt that case monitoring was the more essential activity. The forms that were developed and the data that have resulted pertain specifically to a program without case finding, and adaptations would be necessary if this element were to be added.

Pierce County was selected as the project site for several reasons. Its population mix is representative of the state. Its roughly 500,000 people are 90% white, 5% Black, and 5% Spanish surname, Asian and Native American. Even before the project, it reported a large number of screens, thus ensuring an adequate sample size. The local health department, community clinics and private sector pediatricians were interested and many of them participated actively in project design.

This project, in brief, sought to help the state decide whether to adopt a statewide EPSDT plan and to test data forms and procedures to be used if such a plan were to be implemented. The cost of EPSDT, in both its existing and innovative modes, was expected to be a major consideration, and two intensive cost studies were completed.

## "To Introduce an Agressive Follow-up System . . ."

Project case monitoring began at the point where an eligible child entered a screener's office and agreed to have a physical exam. By signing a voluntary consent form (see Appendix B-1), parents authorized the screener to inform the project of the screen and its results and agreed to be contacted for follow-up by the project staff. Each of these children became part of the project system and activated a flow of data forms and monitoring charts for both case management and evaluation.

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*HSRI, Final Evaluation Report - Phase IV. EPSDT in an Urban Setting--Dallas, Texas, September 15, 1978. Comparisons between the Dallas and Pierce County Projects are seriously constrained, however, because the former used non-physician screeners and separated treatment from screening.

Case monitoring was conceived in Pierce County as having three objectives:

a. to follow referred problems to treatment completion;

b. to encourage annual rescreens for those over one, and bi-monthly rescreens for infants;

c. to ensure the completion of screens when certain tests could not be performed during the initial exam.

Screen completions were attempted if the screener, at his or her discretion, decided that certain tests which had been omitted were necessary for a thorough physical. Problem follow-up was provided for any conditions that could not be resolved during the screen itself. Rescreen reminders were provided for everyone; parents of infants were generally contacted within two months to encourage the next visit, while parents of older children were sought after a year. The project developed written case monitoring procedures and eventually incorporated them into a comprehensive plan; the procedures are attached in Appendix C.

## "To Implement a Reporting System . . ."

Case monitoring would obviously not have been possible unless screeners informed the project of screens and their findings. Because screening occurred all over the county, project staff could not be on hand; they obtained the information they needed instead from standardized data sheets. Under the existing system, screeners reported only to the state and only in enough detail so as to obtain reimbursement. Feedback time was two months and more. Effective case management obviously required greater detail and more expeditious response.

The project handled this problem by establishing an independent data system with specially developed forms and a largely computerized management system. Two major forms and a number of minor ones were tested. The screening sheet was completed by the provider and contained:

- demographic and identifying information;
- a checklist of screening tests;
- space for listing problems and indicating whether they were treated at screen and/or referred; and
- space for the screener to indicate whether he or she considered the screen complete.

The medical referral form was normally initiated by the screener as well; it described the problem and its treatment and was used for case management. The project also used:

- a consent form for parents or guardians;
- a follow-up form letter to treatment providers;
- case monitoring forms; and
- daily activity records.

Project staff trained the screeners and their staffs in the use of these forms and visited each screener regularly to pick them up. A special three dollar fee was paid for each screening form to compensate screeners for the extra paper work. The independent data system and the special forms are an essential component for case management, and the Pierce County project pioneered their use in the state of Washington.

## "To Determine the Most Cost Effective Procedure . . ."

Three different levels of case monitoring were evaluated in Pierce County. During the control phase, between June and early September 1977 (the first three months of the project), project screeners completed screening sheets for all children examined, but no case monitoring was attempted. These children were not assisted to obtain screen completions nor were their parents reminded of rescreen schedules. When they did appear for subsequent screens after September, their screens were recorded but treatment outcomes were not evaluated. The control phase provided essential baseline data for subsequent cost and effectiveness calculations.

Two forms of project intervention were then attempted in order to evaluate their cost effectiveness. Beginning in late August 1977, community health workers contacted the families of children with referred conditions to see if assistance was needed in making appointments or with transportation. CHW's followed each case until all problems were resolved; they also monitored completion of immunizations and contacted the parent when it was time for a rescreen. This phase of the project, known as extended case monitoring (ECM), covered all children screened through September 1978.

A less extensive variant of this procedure, known as limited case monitoring (LCM), was tested on problems reported between October 1978 and March 1979. This sub-study will be more thoroughly described in Chapter 11.

Two types of cost data were collected. The direct cost of case monitoring was estimated by tabulating weekly time records maintained by CHW's, the driver and their supervisor; these figures included all service expenditures but omitted research costs. HSRI, with the project's help, also analyzed treatment costs incurred to the Medicaid billing system. Medicaid profiles were examined for approximately 1,500 children covering a total of 27 months before and after screening. All of these studies were completed successfully and are described in this report.

## Project Chronology

The most detailed sources of project history are the periodic reports submitted by project staff to DHEW and by HSRI to the project. The following chronology lists only the most important events affecting this evaluation.

### 1974

Early state discussions of project objectives; initial contacts with DHEW.

### 1975

DSHS asks HSRI to comment on project ideas and to assist in proposal development; Dr. Harold Dickson and Art Britt make three site visits at Institute expense to provide consulting services.

### 1976

March - DSHS submits formal proposal to DHEW.
November - DHEW approves proposal for initiation December 1, 1976.
December - Project begins.

### 1977

January - Mr. Britt makes site visit; Institute hires Howard Crockett as on-site data coordinator. Job descriptions developed.
February - Three Institute staff members (Britt, Ligon, and McGill) visit Pierce County to discuss proposed data forms.
March, April - Meetings with Pediatric Society. Project data forms developed.
May - Data forms pretested and printed. Providers sign contracts for project participation.
June - Project begins operation. Screening results and problem data are collected, but without case monitoring (control phase).
July - Elaine Schlessinger replaced by Becky Curneen as project director. Project hires and trains community health workers (CHW's). Britt and Dr. Kramm visit project.
August-September - Control phase ends and extended case monitoring begins. Providers are re-contacted and trained for experimental system.
November - Ms. Keith and Ms. Curneen visit Institute in San Antonio. Howard Crockett resigns as on-site coordinator.

### 1978

January - HSRI hires Pat Toy as new on-site coordinator.
February - Project begins contacting parents of children referred for medical treatment during the control phase. Objective is to see whether recommended treatment was initiated and completed.
March-April - Project hires Adrienne Alexander as planner; develops and writes up proposed 1978-79 sub-studies. Control group follow-up continues.

May - Control group follow-up largely completed. Project begins assigning case monitors geographically rather than at random. Project implements improved manual case management system for infant rescreens.
August - Institute and project staff complete work on first interim report. Project hires part-time dental hygienist for special study.
September - DHEW approves third year grant proposal.
October - Limited case monitoring replaces extended monitoring for most problems referred after October 1st. Project begins contacting parents of children over age one to arrange for annual rescreens.
December - Family planning sub-study begins. Pat Toy resigns as Institute's on-site coordinator.

### 1979

January - Project hires Polly Newcomb as data analyst. Institute decides not to replace on-site coordinator. Dental sub-study ends.
February - Project begins contacting parents of children referred for medical treatment during the limited monitoring phase. Objective is to see whether recommended treatment was initiated and completed.
March - On March 31st, the project stops collection of new screening and referral data except from the Family Planning Clinic. Problems reported earlier continue to be followed, however.
May-June - Project completes draft of comprehensive state plan for EPSDT. Draft is intensively discussed at four day meeting with HSRI staff in San Antonio and submitted to the Washington Department of Social and Health Services on July 20th.
June - HSRI completes draft of Medicaid cost study and submits it to the project for review and comments.
July - Project completes follow-up on limited case monitoring group and submits final data forms to HSRI.
November - Project staff and HSRI present results to DHEW in Baltimore and to poster session at the annual meeting of the American Public Health Association in New York. Project formally ends on November 30th.

## Organization of This Report

At the request of the project, this report is organized around the research hypotheses and service objectives as they were defined in the project's original and renewal grant proposals. Essential background data is referenced in these chapters, but in most cases detailed background information is reserved for Section Five. Some of the project's most important findings were not anticipated when the hypotheses were formulated, and some readers may prefer to scan Section Five before reviewing Section Three.

The text of this report includes mostly bar graphs and a few simplified tables, and most of the detailed tabulations are in Appendix A. Text tables have been numbered without prefixes, while appendicized tables are prefixed with the letter A.

# SECTION TWO

# RESEARCH HYPOTHESES

# CHAPTER 2

## RESEARCH DESIGN AND HYPOTHESIS

The Pierce County project had research as well as demonstration objectives, and a number of formal hypotheses were set forth. A control group design was established, and data forms were developed for both research and service functions. Information from data forms was supplemented by interviews with most of the major screeners and by special recoding of forms on two occasions. This chapter will list the formal hypotheses, describe the experimental design, and compare the data collection methods used in the control and experimental periods. Separate chapters will describe routine data management systems (Chapter 15) and further refinements explored through the third year sub-studies (Section Three).

### List of Formal Hypotheses

1. Performance Indicators
   a. The model case monitoring system will have a higher rate of screen completions per number of shows for screening (Chapter 3).
   b. The model case monitoring system will have a higher rate of rescreen completions per number of eligibles for rescreening (Chapter 4).
   c. The model case monitoring system will have a higher retention rate, that is, fewer eligibles lost to the program (Chapter 5).
   d. The model case monitoring system will have a higher rate of problem resolutions per number of confirmed problems (Chapter 6).
   e. The model case monitoring system will have a higher rate of case completions per number of confirmed unwell cases (Chapter 7).
   f. The model case monitoring system will have a greater proportion of clients receiving treatment within time limits prescribed by federal regulation (60 days) (Chapter 8).

2. Treatment Outcomes
   a. Clients served by the model case monitoring system will show greater improvements in health status, as measured by general healthiness ratings, and by severity ratings of specific problem conditions (Chapter 9).
   b. Clients served by the model case monitoring system will show greater "preventive" healthiness, as reflected by the currency of their immunization status, and assessments of their dental health (Chapter 9).
   c. Clients served by the model case monitoring system will show a higher rate of case conversions, that is, unwell to well cases (Chapter 7).

## Experimental Design

In order to evaluate the project's impact, it was, of course, necessary to estimate what would have happened in exactly the same situation without the experimental activities. Tight experimental design is always difficult in a real world situation, but close attention to the most likely sources of variation can greatly increase one's confidence in results. The project's formal hypotheses focused on problem resolution rates, treatment outcomes and rescreen ratios, and factors likely to affect these dependent variables had to be controlled.

Project planners considered a number of control group options, but all were problematic.

One option would have been to select a county that was comparable to Pierce and to measure the dependent variables in this area without case monitoring. The Medicaid Management Information System would not have provided adequate data, however, and results would not have been comparable unless the same project data forms had been used. Collection of comparable data would have required establishment of a second project office and would have been expensive. It was also unlikely that a truly comparable county could be found.

The project's original grant proposal described a system under which children would have been randomly assigned to either the control or the experimental group after data sheets reached the project office. In this case, the control group would have run concurrently with the experimental group, and there was no plan to report back to screeners on whether particular children were being monitored or not. The main reason that this option was eventually rejected was that it would have appeared to be unfair to those who were denied project services. (This is, of course, a recurrent problem in experimental project evaluation.) In a routine statewide program, moreover, screeners would know whether or not monitoring was being done, and the possibility existed that they might modify their own follow-up practices if alternative monitoring were available. The random assignment plan was dropped after the original grant request was submitted.

In the design eventually adopted, all children first screened between June 6, 1977, (the start of project operations) and approximately August 31, 1977, were assigned to the control group for a period of one year or until their first annual rescreen. Screeners completed the project's screening sheet and consent form (see Chapter 15 for a discussion of these forms) and submitted them to the project. The project did not monitor these problems. Six months later, HSRI produced a computerized roster listing all control group medical problems that were not fully treated at the screen. The project then contacted the parents of these children to determine whether treatment had been completed subsequently. Project medical referral sheets were filled in accordingly.

Children first screened during the control phase were left in the control group for at least one year even though many of them received one or more rescreens. They were left in the control group because rescreen ratios were themselves being tested. The project neither monitored problems reported after the initial control period nor followed up after six months to determine treatment outcomes. Certain control group children were eventually added to the experimental group after one year.

In Campbell and Stanley's terms, the most serious threat to this design was "history". Any major change in the state's routine EPSDT program during the period under study would have threatened comparisons. Major events did occur at the very start and at the very end of the project, but very little changed in between.

During July 1977, early in the control phase of the project, the state raised reimbursement rates for EPSDT screening by 50%. This almost certainly affected rescreen rates because it gave screeners a financial incentive to remind clients of rescreens or to "upgrade" subsequent office visits into EPSDT. Both the experimental and control groups were affected equally, however, since virtually no rescreens had occurred prior to the change.

The second event was the promulgation of new federal penalty regulations for EPSDT in May 1979. The state acted quickly to satisfy these regulations, at least on paper, but no program changes were instituted until October 1st, until well after all project data had been collected.

There are no visible "history" threats to the experimental design, although the design makes it impossible to rule them out completely.

Another potential problem with this design had to do with the way in which data were collected. Data on the experimental group were recorded by case monitors during the course of monitoring, and they were, therefore, largely current at the time that they were recorded. Parents of control group children, however, were not contacted until about six months had passed since the events in question. The follow-up interviewer needed to know not only whether treatment was completed, but also the date on which it was initiated; and recall lapse, particularly on the latter point, was inevitable. Outcome reports may also have been affected by the fact that case monitors became acquainted with their clients through repeated contacts, while the control group follow-up interviewer made only a single contact.

The project was very conscious of these possible sources of contamination, and it made every effort to control them. The same case closure statuses were used for the control as for the experimental group, and the same individual- the assistant project director - examined every case as it was closed. Very little occurred that could have seriously threatened the experimental design, but it must be recognized (and accepted) that minor scientific flaws are unavoidable in a real world project.

# CHAPTER 3

## SCREEN COMPLETIONS

"The model case monitoring system will have a higher rate of screen completions per number of shows for screening."

Neither the state nor the federal government had, until recently, defined the content of a complete EPSDT screen, and so it was left to individual screeners to make their own definition. During the course of the project, 175 experimental screens (4.3% of the total) were defined as incomplete at the first visit. The most usual reason for an incomplete screen was that urinalysis could not be done.

Table 1 shows the screen completion status for both the control and the experimental groups. In the control group, 97.5% of screens were completed at the first visit compared to 95.7% in the experimental phase. In both the experimental and control groups, TPCHD clients were the least likely to be complete at first visit, possibly because health department staff were more conscientious (or compulsive) in following through on detail. Subsequent visits closed all but 2.0% of control screens and 1.7% of experimental ones.

During the control phase of the project, only 39 screens were defined as incomplete, and this was too small a number to allow reliable hypothesis testing. Community health workers did monitor the 175 incomplete experimental screens, and they were able to complete 107 (61.1%) of them. The average incomplete screen required one hour and fifteen minutes of CHW time and cost $24.41 in staff time and overhead. An average of two hours and fifteen minutes and $44.30 were needed to complete a screen*.

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*The methodology used to develop these cost figures is discussed in Appendix D.

# TABLE 1: PERCENT OF SCREENS COMPLETED

## COMPLETED SCREENS

| | N* | Completed at First Visit | Completed at Second Visit | Total Completed | Incompleted Screens |
|---|---|---|---|---|---|
| | | | CONTROL GROUP | | |
| Total | 1574 | 97.5 | 0.5 | 98.0 | 2.0 |
| Age | | | | | |
| Under 1 | 672 | 99.0 | 0.6 | 99.6 | 0.4 |
| 1- 6 | 556 | 96.0 | 0.7 | 96.7 | 3.2 |
| 7-13 | 266 | 98.5 | 0.0 | 98.5 | 1.5 |
| 14-20 | 80 | 92.5 | 0.0 | 92.5 | 7.5 |
| Provider | | | | | |
| High Volume | 791 | 98.4 | 0.3 | 98.7 | 1.4 |
| Low Volume | 502 | 96.6 | 1.0 | 97.6 | 2.4 |
| Community Clinics | 154 | 99.4 | 0.0 | 99.4 | 0.6 |
| TPCHD | 127 | 93.7 | 0.8 | 94.5 | 5.5 |
| | | | EXPERIMENTAL GROUP | | |
| Total | | | | | |
| Age | 4059* | 95.7 | 2.6 | 98.3 | 1.7 |
| Under 1 | 1416 | 98.6 | 0.7 | 99.3 | 0.7 |
| 1- 6 | 1631 | 95.0 | 2.0 | 97.0 | 2.9 |
| 7-13 | 739 | 96.5 | 2.3 | 98.8 | 1.2 |
| 14-20 | 273 | 82.4 | 17.2 | 99.6 | 0.4 |
| Provider | | | | | |
| High Volume | 1613 | 98.7 | 0.9 | 99.6 | 0.4 |
| Low Volume | 1614 | 96.0 | 2.2 | 98.2 | 1.9 |
| Community Clinics | 415 | 98.1 | 1.0 | 99.1 | 1.0 |
| TPCHD | 366 | 89.1 | 3.6 | 92.7 | 7.4 |

* Includes 51 family planning screens

# CHAPTER 4

## RESCREENS

"The model case monitoring system will have a higher rate of rescreen completions per number of eligibles for rescreening."

The state of Washington authorized up to five EPSDT screens during each child's first year of life and one every twelve months thereafter. As noted above, the project hypothesized that routine reminders by case workers would increase the proportion of children who showed for rescreen. (See Appendix C for the procedure used.)

Two practical problems emerged in testing this hypothesis. The first was that many rescreens were reported only to the Medicaid billing system and not to the project. The project learned of these rescreens by obtaining Medicaid profiles on each participating child, and HSRI then entered a dummy screening sheet into its data system for each such screen. (In this report, non-project screens are only counted in rescreen ratios, not in other tabulations.) The second problem was that the reason for not having a rescreen was only recorded manually and only for the experimental group; hence, we can only estimate "the number of eligibles for rescreening..."

### A. Infant Rescreens

The state of Washington officially recommended that infant screens be done on the following schedule:

- one screening up to six weeks of age
- one during two to three months of age
- one during four to five months of age
- one during six to seven months of age
- one during eleven to twelve months of age.*

Individual screeners followed their own schedules, however, and all screens up to five in one calendar year appear to have been reimbursed.

The periodicity schedule shown above created major problems for the project, and it would not be feasible to monitor on a statewide basis. Most of these screens were supposed to occur two months or less apart, and a computerized data system - except one giving the project on-line access for data entry and retrieval - cannot possibly be updated fast enough. The project experimented with several computerized rosters produced by HSRI, but it was only able to monitor rescreens effectively after it instituted a manual tickler system in May 1978.

The state's periodicity schedule was also difficult to monitor because few of the participating screeners followed it. In contacting parents, CHW's had to ask when they had last seen the doctor and when he wanted to see them again. They could remind parents of their right to a periodic rescreen but could not require their regular physician to provide it. The project recorded 47 instances in which infant rescreens recommended by the state schedule did not occur because the child's physician did not feel that the time was appropriate.

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*The first and second period overlapped by two weeks. No screens were authorized between exactly seven and exactly ten months after birth.

## Testing the Hypothesis

The dependent variable to be measured for this hypothesis is the ratio between actual and expected rescreens for each group of children. Both the numerator and the denominator of the ratio were somewhat difficult to calculate.

For this analysis, we classified infant screens by whether or not they accorded with the state's official schedule. Those that did were labelled "correctly timed", while those that fell in the period between seven and ten months after birth were called "wrong period". A third group called "duplicates" included repeat screens in officially authorized periods. We have excluded the third type of screen from this hypothesis test because these screens occurred less than two months after a correctly timed screen and were probably ineffective as EPSDT procedures.

The expected number of rescreens was also problematic because many infants entered the project long after their first screen should have occurred, and many others had not reached their first birthday by the time the project ended. Although infants should have had five screens during their first year of life, only a minority were under project surveillance for a full twelve months. The expected number of rescreens was based on the state's official periodicity schedule; and it was calculated separately for each individual based on his age and the date when he entered the project.

Since the project did not have an effective system for rescreens until April 1978, the experimental results discussed below are for infants first screened in May or later.

## Results

Chart 1 shows that case monitoring did, indeed, improve the ratio between actual and expected rescreens, from 64.4% in the control group to 74.1% in the experimental. For high volume physicians,* the ratio rose from 65.6% to 76.5%; while for low volume physicians, it went from 62.7% to 80.0%.(The other two provider groups are not shown because of insufficient case size; full details of these calculations are presented in Table A-1).These three differences are all statistically significant for a one-tailed t test at the 0.05 level of confidence and they, therefore, support the hypothesis.

## Reasons for Incomplete Rescreens

Table 2 shows that most of the failures to schedule infant rescreens lay outside the project's control. Over half (50.5%) of the rescreen failures occurred because the child was no longer eligible for EPSDT. Physicians refusal accounted for 15.4% of rescreen failures, and patient refusal for 10.5%. These numbers refer only to the experimental group, but all except

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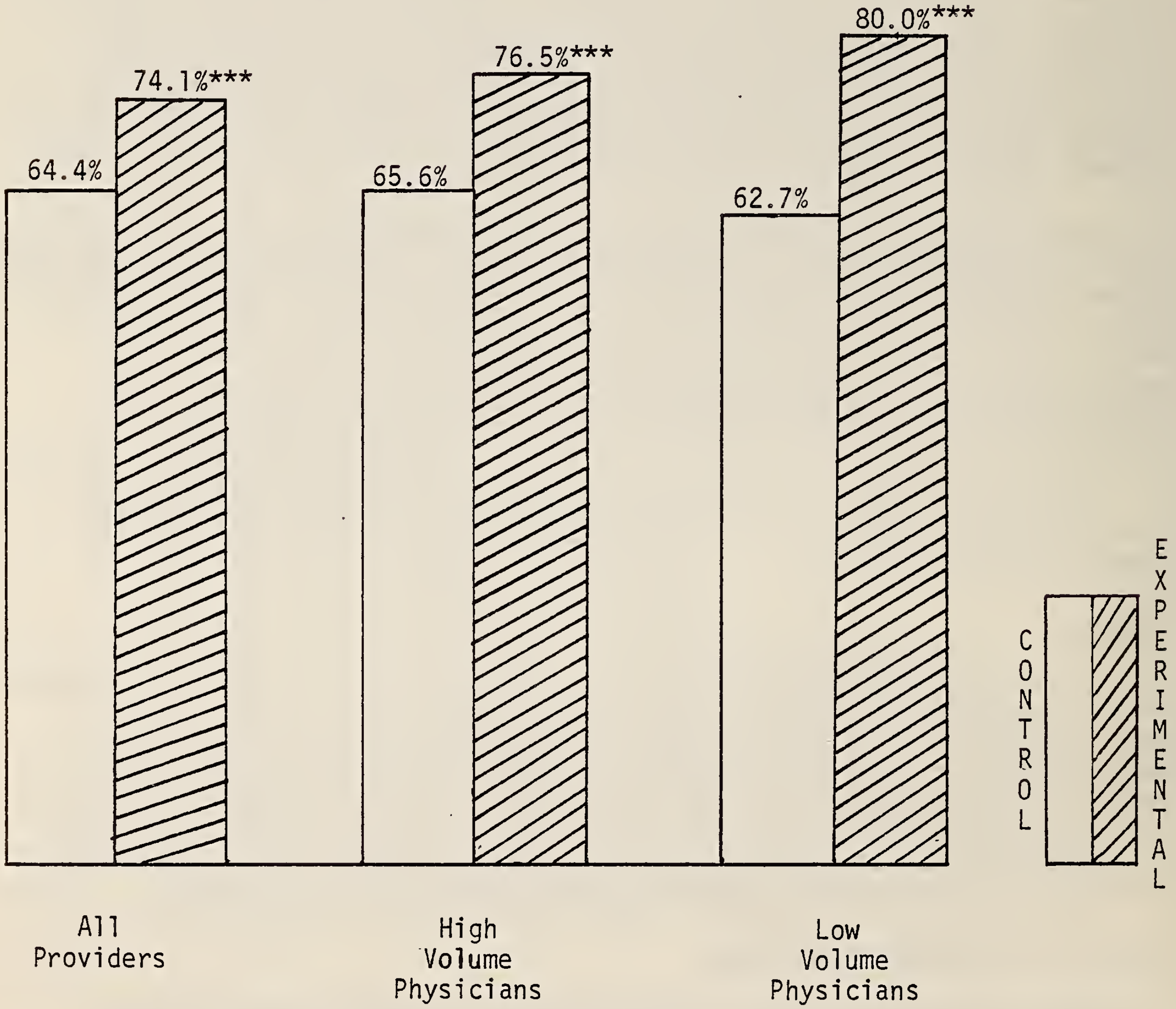
*See Chapter 14 for a discussion of the four provider groups.

Chart 1: Ratio Between Actual* and Expected Infant Rescreens for the Control and Experimental** Groups



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*Excludes "duplicate" screens. See text.
**Includes infants first screened between May and September 1978 only.
***Significantly greater than result for control group.

the patient refusal category probably occurred with about the same frequency during the control period.

Table 2: Reasons for Failure to Complete Infant Rescreen Series

| N = 305 | |
|---|---|
| Unable to contact | 30.5% |
| Family moved | 20.0% |
| No longer eligible | 19.7% |
| Doctor did not feel rescreen was needed at this time | 15.4% |
| Refused | 10.5% |
| Other | 3.9% |
| | 100.0% |

The factors listed above cannot be used for adjustment of rescreen ratios because they refer to children rather than to rescreens. They do indicate, though, that rescreen ratios for children entering the project after May 1978 were about as high as monitoring could expect to make them.

## The Cost of Monitoring Infant Rescreens

A completely accurate estimate of the cost of monitoring rescreens cannot be made since we do not know how many rescreens were worked on. A total of 1,489 rescreens were "expected" to occur during the period under study, but the project clearly did not work on all of them. Some children were lost to follow-up or became ineligible even before their first rescreen was due, and no monitoring was then attempted for later rescreens. The figures discussed below are approximately correct, however, and should be adequate for planning purposes.

Community health workers spent an average of 39 minutes arranging each of these expected infant rescreens, and the total cost, including associated overhead expenses was $12.81*. The cost for a full series of four infant rescreens, based on this figure, would be $51.24 per child.

The actual number of rescreens that occurred was 1,103, and the cost for each of the "successes" was $17.21.

Chart 1 above showed that many of these rescreens would have occurred anyway even without project intervention. Case monitoring improved the rescreen ratio by 9.7 percentage points, from 64.4% to 74.1%. The cost for these

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*See Appendix D for a complete discussion of the costing methodology.

"extra" rescreens, that is, per rescreen that would not have occurred without monitoring, was $132.49.

## B. Annual Rescreens

The State of Washington recommended that eligible children above age one have an EPSDT screen every twelve months. These, in principle, should have been easier to monitor because the long interval between screens facilitated use of computerized rosters. The welfare population is highly mobile, however, both geographically and in terms of eligibility,so that a considerable effort was required to arrange each rescreen.

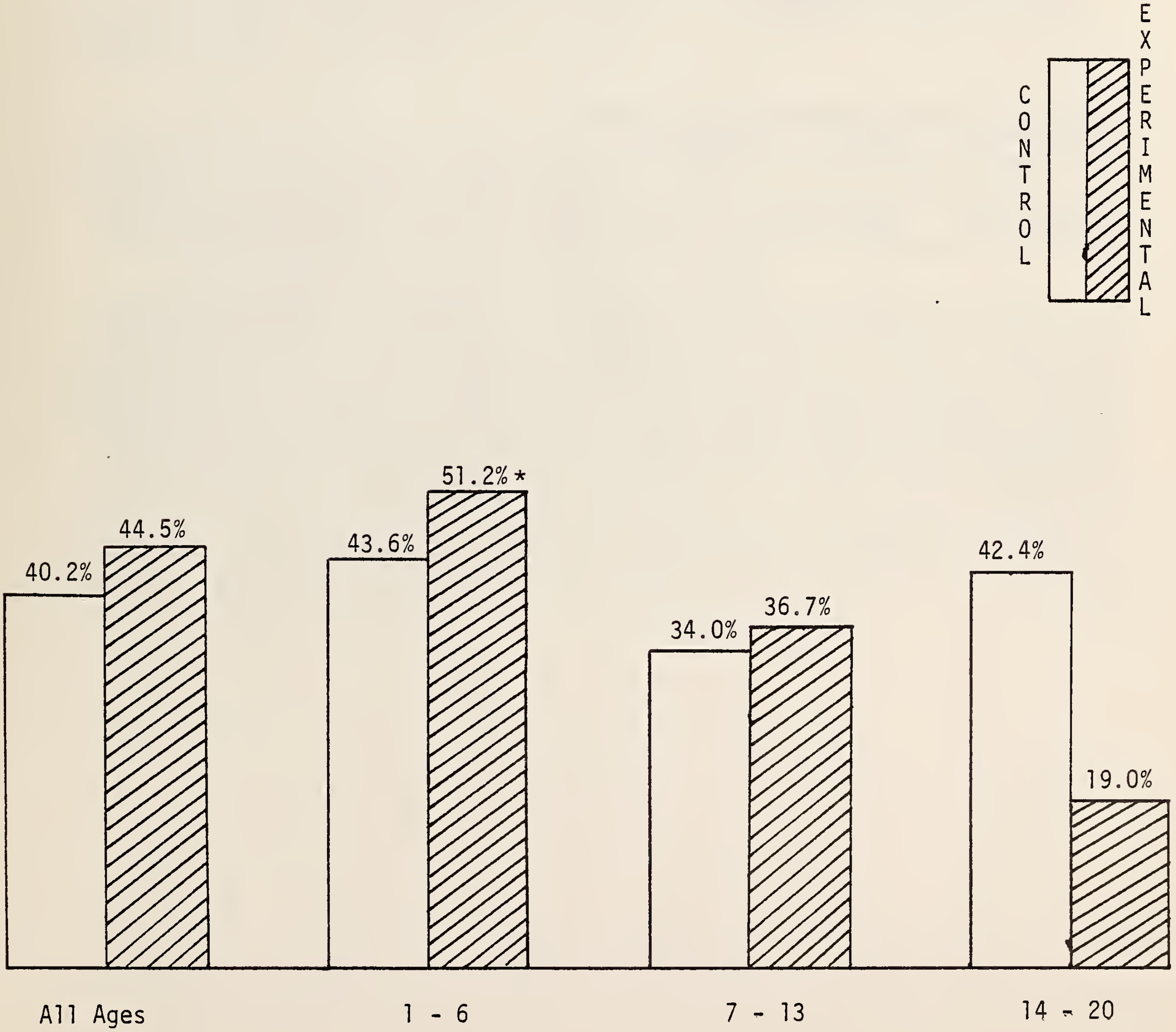
Case monitoring did improve the proportion of children having an annual rescreen, but the overall effect was smaller than it was for infant rescreens. If we count all second screens regardless of when they occurred, we find that 40.2% of control group children had rescreens, compared to 44.5% of experimental children first screened in 1977. (Those first screened after 1978 are excluded from this calculation because many of them did not have time for a rescreen before the end of the project.) Chart 2 shows a moderate size improvement for preschool children (43.6% to 51.2%) and a drastic worsening (42.4% to 19%) for teenagers. This falloff for teens cannot be explained with the data at hand, but other indices in this report also show that monitoring had little positive effect for those over 13.

The procedure used in the Pierce County project was to remind children of their rescreen rights as soon as possible after twelve months had passed since their last screen. Rescreens that occurred sooner than twelve months after last screen were not due to project intervention, and a cost-conscious program might actually try to discourage them as ineffective. The ideal time for annual rescreens, as defined by the project, was twelve to sixteen months after last screen.

Detailed results shown in Table A-2 indicate that monitoring increased the proportion of children with ideally-timed rescreens from 9.7% to 16.8%. The proportion of rescreens that occurred during this ideal period was 24.1% for the control group and 37.8% in the experimental. The overall effect of monitoring was small, but the effect was considerable within the time period that the project sought to influence.

The explanations for failure to rescreen were about the same for children over one as they were for infants, but a larger proportion of the "over ones" were ineligible and a smaller proportion were refused an appointment. A total of 55.2% of rescreen failures occurred because the family had moved or could not otherwise be located, while 28.2% occurred because of ineligibility. In 2.4% of cases, the child's physician did not feel a rescreen was needed at this time, while clients refused rescreening in 3.3% of cases. These figures, as before, refer only to the experimental group, but they would probably have been about the same for those without monitoring.

Chart 2: Proportion of Children Having An Annual Rescreen By Age at First Screen



*Significantly greater than result for control group.

Table 3: Reasons for Failure to Get Annual Rescreens

N = 571

| | |
|---|---|
| Unable to contact | 30.5% |
| Family moved | 24.7% |
| No longer eligible | 28.2% |
| Doctor did not feel rescreen was needed at this time | 2.4% |
| Refused | 13.3% |
| Other | 0.9% |
| | 100.0% |

## The Cost of Annual Rescreen Monitoring

According to project records, community health workers spent a total of 793 hours working on 876 annual rescreens, for an average time cost of 54 minutes each. The monetary cost per rescreen attempted (including overhead and a portion of miscellaneous EPSDT-related costs) was $17.64.

Only a portion of these rescreens were successfully completed, however, and only 120 occurred during the optimal period of twelve to sixteen months after last screen. These 120 completed rescreens cost an average of $128.77 each to arrange. As shown above, moreover, many of these would have occurred anyway, without project intervention; and "extra" rescreens, above and beyond those that would have occurred on their own, cost an average of $223.94 to arrange.

## CHAPTER 5

## CASE RETENTIONS

"The model case monitoring system will have a higher retention rate, that is, fewer eligibles lost to the program."

This hypothesis has two possible meanings in terms of the available data set, one based on infant and annual rescreen ratios, and the other based on problem outcomes. Since Chapter 4 discussed rescreens, this chapter focuses on the alternative measure.

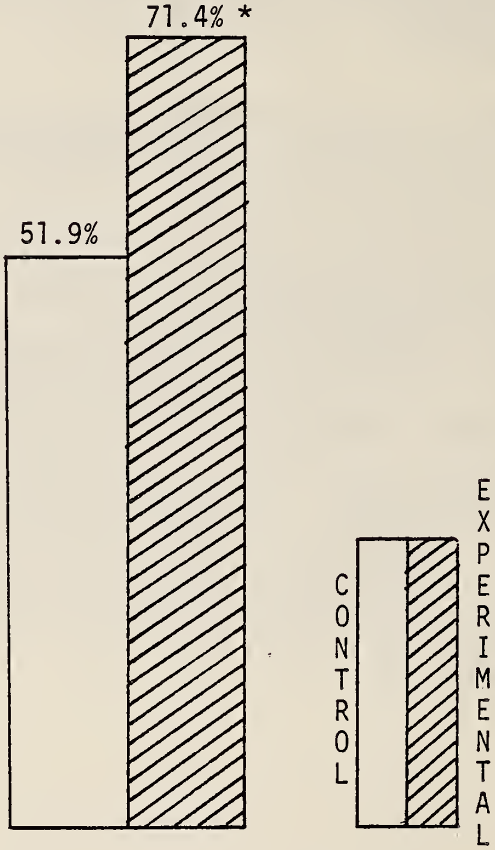
A "case" is defined as all of the problems arising from a single screen. A "retained case" is one in which all of the reported problems were closed with one or more of the following statuses:

- false positive
- treatment/immunization completed
- treatment terminated/maximum benefit achieved
- under treatment six months after referred
- condition noted; treatment not advised or warranted.

(See Appendix E for a full listing of possible closure statuses.)

Chart 3 shows that monitoring did increase case retention rates, as hypothesized. The overall improvement - for cases with at least one referral - was from 51.9% to 71.4%, a difference which is statistically significant for a one-tailed t test at the 0.05 level of confidence. Detailed results in Table A-3 show similar degrees of improvement in most age and provider groupings; only teenagers and TPCHD clients show relative small improvements. Hypothesis 1-c is, therefore, supported.

Chart 3: Proportion of Cases Retained
(Cases With at Least One Referral)



*Significantly greater than result for control group.

# CHAPTER 6

## PROBLEM RESOLUTIONS

"The model case monitoring system will have a higher rate of problem resolutions per number of confirmed problems."

A resolved problem in this project was defined as one given any of the following closure statuses:

- treatment/immunization completed
- treatment terminated/maximum benefit achieved
- condition noted; treatment not advised or warranted

False positives and those still under treatment six months after referral were considered neither resolved nor unresolved; the proportion of problems resolved consisted of the number resolved divided by the total number of problems, less false positives and those still under treatment. (See Appendix E for a tabular presentation of this classification scheme.)

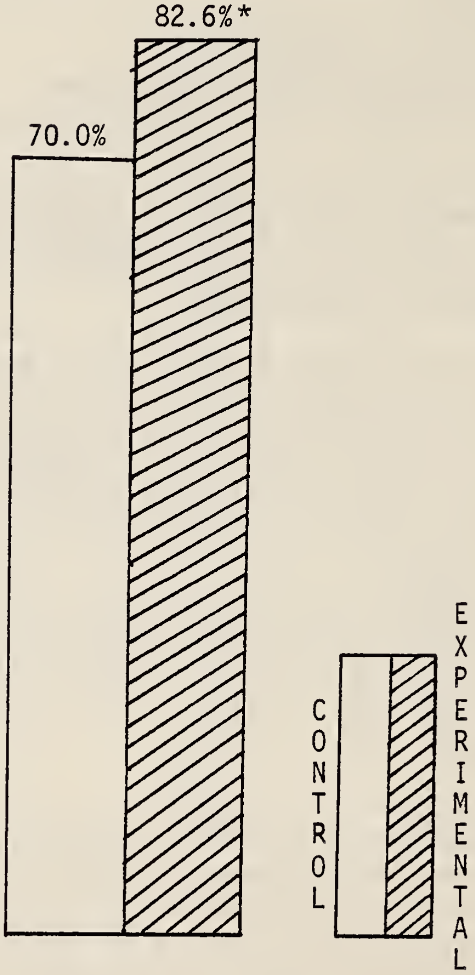
Chart 4 and Table A-4 show that monitoring did improve the proportion of problems resolved by 12.6 percentage points, from 70% to 82.6%. This difference is statistically significant for a one-tailed t test at the 0.05 level of confidence and it, therefore, supports the project's hypothesis. Detailed results shown in Table A-4 indicate substantial improvements for all age groups except teenagers, for all provider groups and for most of the larger ICDA groupings.

The differences summarized in Chart 4 appear to be small mainly because 51.7% of control group problems and 37.9% of experimental ones were fully treated and resolved at the screen. (See Chapter 17 for further discussion.) Monitoring could only be expected to influence those problems requiring additional treatment after screen. Chart 5, therefore, provides a more sensitive indicator of case monitoring's effectiveness.

Chart 5 and Table A-4 show that monitoring increased the proportion of referred problems that were resolved from 37.9% to 70.1%. The most dramatic improvement was for children aged between one and six, since their resolution rate increased from 27.8% to 65.7%. Teenagers, on the other hand, benefitted very little; their resolution rate, already high (55%) without monitoring, increased by only 4.3 percentage points to 59.3% during the experimental phase. Other results shown in Table A-4 indicate that TPCHD clients benefitted from case monitoring less than did clients of other screeners.

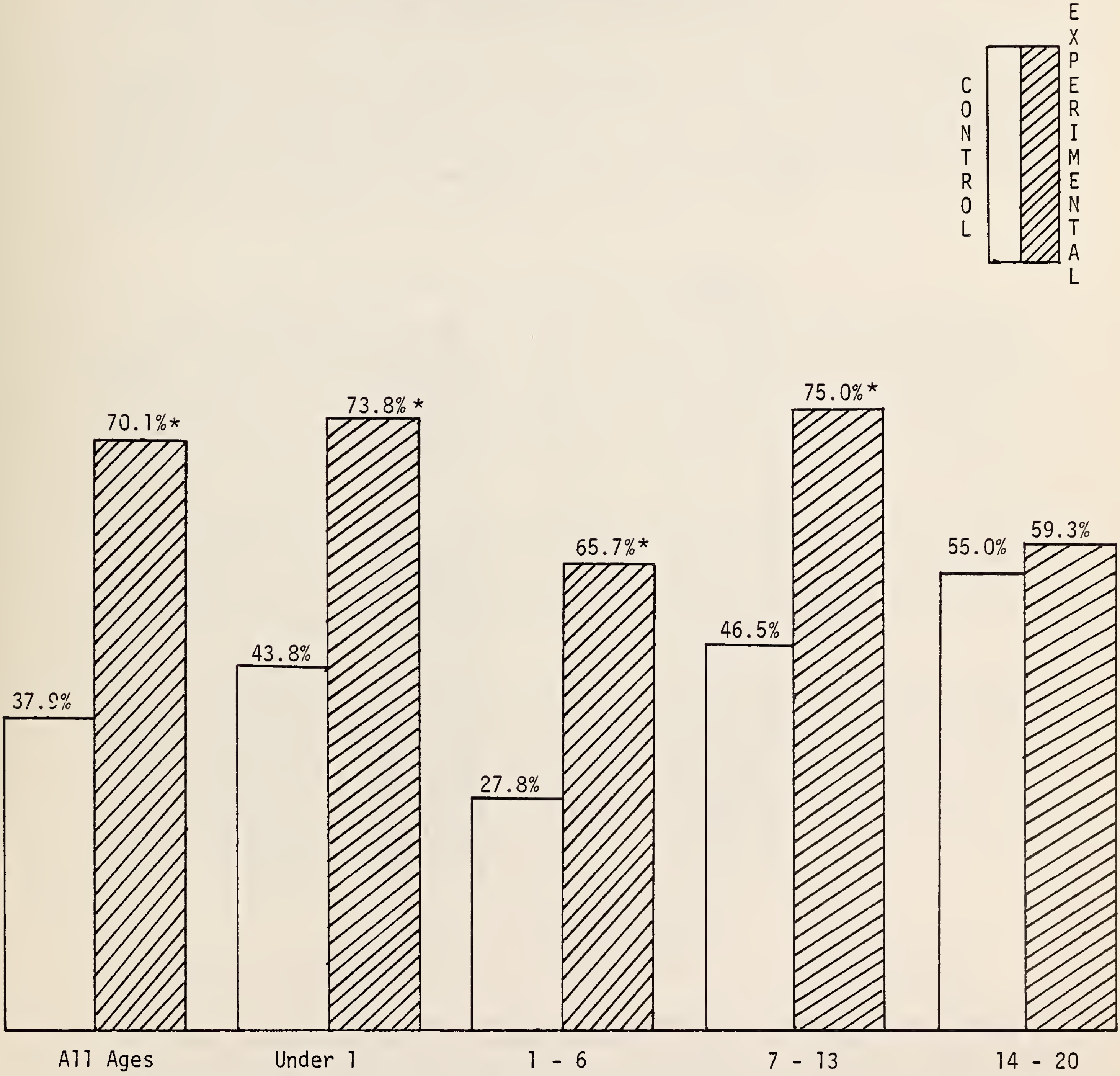
Chart 6 shows problem outcomes by whether the screener referred the problem back to self or to some other provider. Without case monitoring, referrals to "other" were nearly twice as likely to get resolved as were referrals to self (53.9% versus 29.8%). This may be because parents considered problems referred

Chart 4 : Proportion of Total Problems Resolved



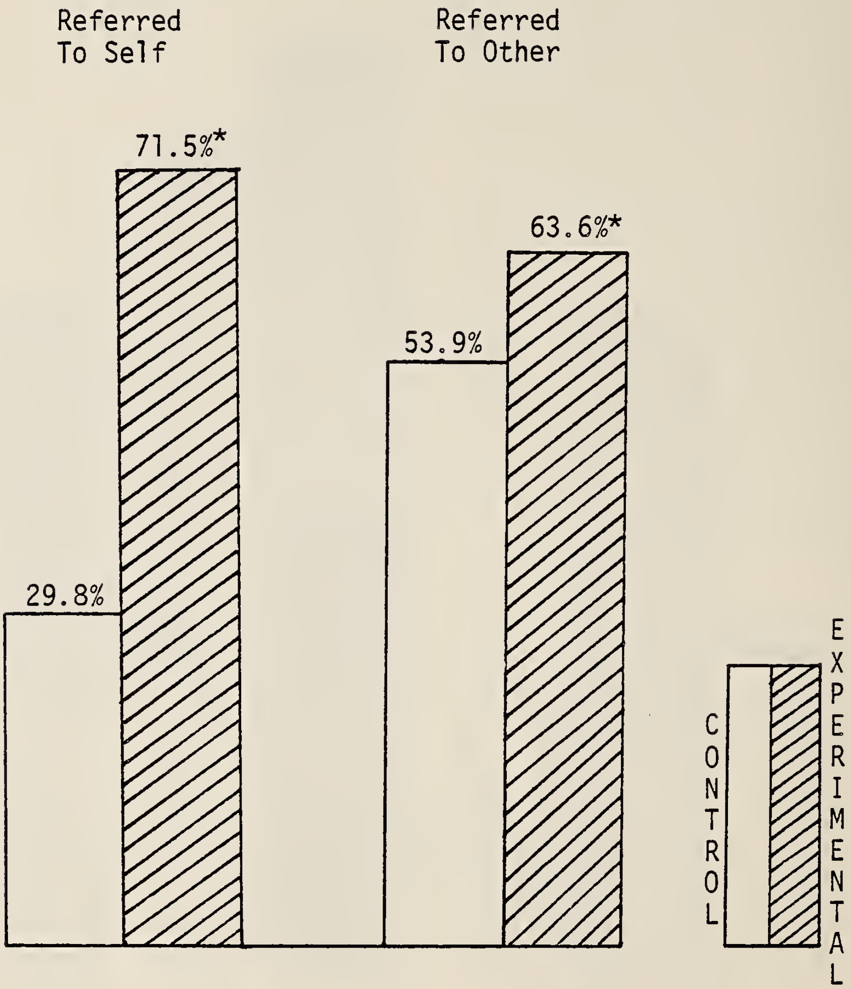
*Significantly greater than result for control group.

Chart 5 : Proportion of Referred Problems Resolved, by Age Group



*Significantly greater than result for control group.

Chart 6 : Proportion of Referred Problems Resolved, By 'To Whom Referred'



*Significantly greater than results for control group.

elsewhere to be more serious, although, in fact, we have no data to support this. With case monitoring, on the other hand, the proportion resolved rose 41.7 percentage points to 71.5% for referrals to self and only 9.7 points to 63.6% for referrals to "other". We are not quite sure why these effects are so different and suggest that they be tested in other projects as well.

Sufficient cases are available for analysis in five of the seventeen ICDA categories, and all but dental show improvements due to monitoring. The proportion of mental disorders resolved rose from 21.4% to 59.7%. Nervous system and sense organ problems increased from 48.1% to 73.9%. Immunization completions rose from 34% to 53.8%, and "all other conditions" went from 31% to 68.8%. The 13.2 point fall for dental referrals, from 71.9% to 58.7%, suggests that this type of problem does not benefit at all from CHW follow-up.

## Detailed Problem Closure Statuses

The results described above are based on a combination of problem closure statuses, and they ignore problems that were still under treatment after six months. Table A-5 lists all ten closure categories and gives us further information on why resolution rates differed. Monitoring had the greatest effect on three categories: the proportion completed rose from 27.4% to 50.8%; the proportion still under treatment fell from 21.9% to 13.8%, and the proportion refused fell from 33.8% to 6.7%.

Differences by referral destination are again interesting. In the control group, referrals to "other" were nearly twice as likely as referrals to self to be closed with treatment completed, while the reverse relationship held true with case monitoring. The proportion of referrals to other that were completed was actually higher without monitoring than with it. An astounding 39.2%* of control group referrals to self were closed as treatment refusals.

Details in Table A-6 show the distribution by case closure status of those problems that did not get resolved during the control and experimental phases. During the control phase, 70.1% of failures were due to patient refusals, while families had moved or been lost to contact in 29% of cases. During the experimental phase, on the other hand, 34.2% were due to refusal and 62.5% were lost to follow-up. The latter category, of course, lies outside the project's control, suggesting that the type of monitoring practiced in Pierce County came close to reaching its maximum potential.

## Timing of Problem Resolution

Table A-7 shows the timing of problem resolution for all control and experimental problems. In the experimental group, 42% of problems were resolved at screen*, an additional 24.7% were resolved at the first visit after screening**, and 8.8% were resolved later; 9% were still under treatment six months after screening, and 15.4% were closed without resolution.

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*This closure category included an unknown number of problems for which a return visit to the physician was somewhat discretionary. The physician in these cases may have told the parent to call him after some period of time to decide whether a further treatment was necessary. If the parent failed to do this, the case was closed as a refusal.

Exactly two-thirds (66.7%) of experimental problems were resolved either at screening or within one visit thereafter. Doctor A resolved 80.6% of experimental problems within this time frame, while TPCHD resolved only 35.8% of its problems. By ICDA group, infectious diseases and parasites, and respiratory and skin problems were especially likely to be resolved within one visit (86.1%, 85.6% and 86.9% respectively), while dental problems and immunizations were the least likely (31.9% and 32.8% respectively).

## The Cost of Problem Resolution

Community health workers spent an average of 94 minutes following each of the 1,835 problems that were referred during the experimental phase of the project. The cost in dollar terms, including a share of overhead and unallocated EPSDT costs, was $30.59 per problem followed. These and other figures are summarized in Table 4 and further explained in Appendix D.

Table 4 shows that immunizations and dental problems generally cost only about half as much to follow as did other medical problems. The cost per problem followed was $17.78 for immunizations, $16.70 for dental problems, and $33.40 per other medical problem. These costs are in terms of 1978 dollars and would have to be inflated for projection into the future.

The figures in Table 4 can also be used to estimate the average cost per screen or per child. In Chapter 16 we will show that the average screen reported 0.68 referred problems, so that the average monitoring cost per screen was $30.59 x 0.68, or $20.79. The average infant screen reported 0.63 referred problems, so the cost for a series of five infant screens would be $30.59 x 0.63 x 5, or $96.36. (As shown in Chapter 4, the monitoring cost to arrange these rescreens would be $12.81 x 4, or $51.24; this, plus the screening cost itself, $110.00, and the cost of problem monitoring, would add up to $257.60.)

The cost per problem resolved in Pierce County averaged $50.93. It was $38.58 for immunizations, $32.87 for dental referrals, and $53.14 for other medical conditions.

The final column of Table 4 shows the cost per "extra" problem that would not have been resolved without case monitoring. As we showed earlier in this chapter, 37.9% of referred problems were resolved during the control phase without any

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*See Chapter 17 for further discussion of this proportion.

**This proportion was determined after a special recoding of experimental problems. The recoding was not done for the control group.

### Table 4: Time and Financial Costs for Problem Monitoring

| | Average CHW Time per Problem | Cost per Problem Followed | Cost per Problem Resolved | Cost per "Extra" Problem Resolved |
|---|---|---|---|---|
| All problems | 94 minutes | $30.59 | $50.93 | $99.34 |
| Immunizations | 55 " | 17.78 | 38.58 | 132.89 |
| Dental | 51 " | 16.70 | 32.87 | -- * |
| Other Medical | 103 " | 33.40 | 53.14 | 86.91 |

*Case monitoring had no effect on resolution rates.

monitoring at all, and presumably the same porportion would have been resolved "for free" during the experimental phase. Had the project known in advance which problems these were, it could, of course, have saved itself a great deal of money; but as it was, only a portion of the problems monitored actually benefitted from it. For those that did, the average cost was $99.34, including $132.89 for immunizations and $86.91 for other medical problems. Since dental problems were less likely to be resolved with rather than without monitoring, it may be considered that all of the money spent on this category was wasted. These results strongly suggest that case monitoring should be prioritized in future EPSDT programs.

# CHAPTER 7

## CASE COMPLETIONS AND CONVERSIONS

"The model case monitoring system will have a higher rate of case completions per number of confirmed unwell cases."

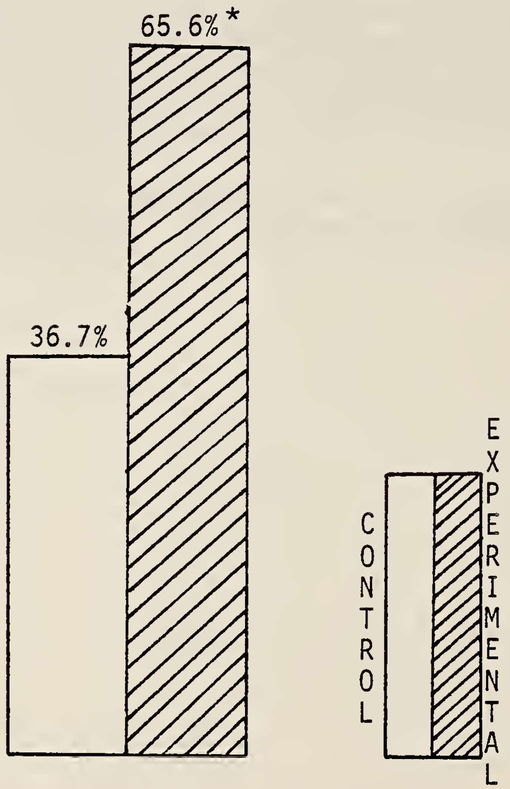
"Clients served by the model case monitoring system will show a higher rate of case conversions; that is, unwell to well cases."

These two hypotheses are identical to each other, and so they are considered together. As shown in Appendix E, a converted case is one in which all problems were resolved. A case conversion, in other words, is the same as a problem resolution except that all of the problems reported from a single screen are considered together.

Chart 7 and Table A-3 show that monitoring increased the proportion of cases converted from 36.7% in the control group to 65.6% in the experimental. This difference is statistically significant for a t test at the 0.05 level of confidence. As with problem resolutions, the differences were largest for preschool children (ages one to six) and smallest for teenagers.

As detailed in Appendix D, the monitoring cost per referred case was $46.89 and the cost per converted case was $86.35. The cost for each "extra" conversion was $177.05.

Chart 7 : Proportion of Cases Converted
(Cases With at Least One Referral Only)



*Significantly greater than results for control group.

## CHAPTER 8

## INTERVAL TO TREATMENT INITIATION

"The model case monitoring system will have a greater proportion of clients receiving treatment within time limits prescribed by federal regulations (60 days)."

The hypothesis stated above is no longer correct in its reference to federal regulations and, in fact, the data system developed in the Pierce County project cannot be easily adapted to the new requirements. As of May 1979, regulations require that a "state must have screened and begun treatment of at least 75% of the recipients who requested services within 120 days of the initial request. . ." By 180 days, moreover, 95% must be screened and have treatment initiated. The project's data system began at the screen rather than at the intake interview, and so we can only count the interval to treatment initiation from that point onward.

Chart 8 evaluates the original hypothesis by showing the proportion of control and experimental problems for which treatment was initiated within sixty days after screening. In the control group, treatment was initiated for 68.9% of problems during the screen itself (see Chapter 17), and an additional 12.8% had treatment initiated within sixty days thereafter (total 81.7%). During the experimental phase, 76.9% of required treatments were initiated during the screen and an additional 11% during the ensuing two months for an overall total of 87.9%. The proportion treated was higher during the experimental phase, but this was mainly because of the chance event that more experimental problems were treated during the screen.*

Table 5 provides a more refined measure of the effect of case monitoring because it includes only those problems that did not have treatment initiated during the screen (Table A-9, in the Appendix, is a more complete version of Table 5.) This table shows that monitoring did improve the percentage reaching initial treatment within sixty days by 8.1 percentage points, from 38.9% to 47%. Results by age show a dramatic improvement (from 26.7% to 47.8%) for children aged one to six, but no improvement at all for other age groups. Teenagers, in fact, did worse with monitoring. There is a consistent pattern here: whether we look at rescreen rates, problem resolutions, or treatment initiations, preschoolers always benefitted the most from monitoring while teenagers reacted negatively.

Several of the differences in Table 5, including the difference between the control and experimental group totals, are statistically significant for a one-tailed t test at the 0.05 level of confidence. The hypothesis is supported.

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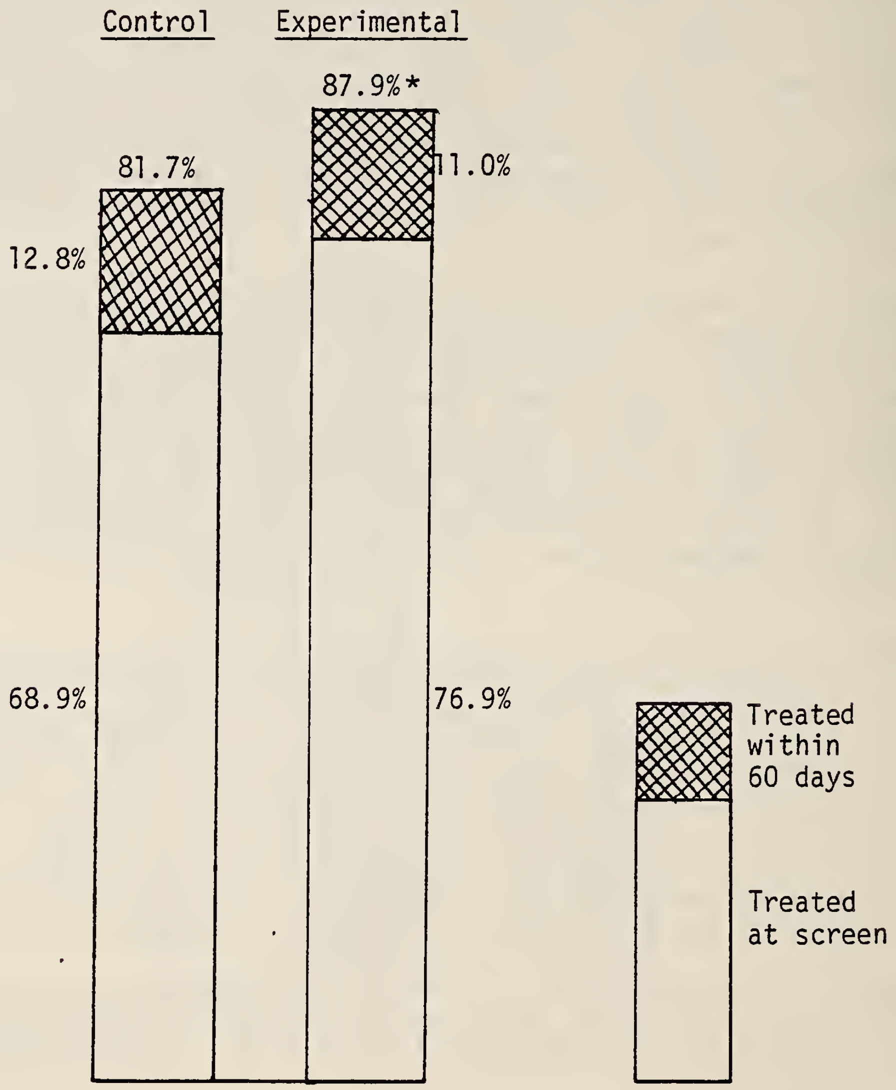
*Results of the experimental group are biased downward, however, because the date of treatment initiation was not consistently recorded until mid-August 1978. Too few problems were reported after that date to allow a refined test. Dates for the control group were consistently recorded, however.

Chart 8 : Proportion of Total Problems Receiving Initial Treatment Within Sixty Days After Screening



*Significantly greater than result for control group.

Table 5: Proportion of Problems Receiving Initial Treatment within Sixty Days after Screening, Excluding Problems Treated at Screen

| | Control | Experimental |
|---|---|---|
| Total | 38.9% | 47.0%* |
| Age | | |
| Under 1 year | 43.8 | 42.8 |
| 1-6 years | 26.7 | 47.8* |
| 7-13 years | 49.5 | 48.0 |
| 14-20 years | 64.3 | 51.7 |
| Provider | | |
| High volume | 40.7 | 52.6* |
| Low volume | 31.5 | 47.3* |
| Community clinics | 37.9 | 51.9 |
| TPCHD | 44.2 | 42.2 |

*Significantly greater than result for control group.

## CHAPTER 9

## TREATMENT OUTCOMES

"Clients served by the model case monitoring system will show greater improvements in health status, as measured by general healthiness ratings, and by severity ratings of specific problem conditions."

"Clients served by the model case monitoring system will show greater 'preventive' healthiness, as reflected by the currency of their immunization status, and assessments of their dental health."

"Clients served by the model case monitoring system will show a higher rate of case conversions, that is, unwell to well cases."

The first two of these hypotheses were intended to be measures of the long term health benefits of EPSDT. They, therefore, require a comparison of findings at initial screens with findings at subsequent screens. Age controls are essential for this because, as we shall show in detail later on (Chapter 16), finding rates and the probability of rescreening are quite age dependent.

The third hypothesis is identical to one tested in Chapter 7, and it will not be reconsidered here.

Charts 9 through 13 compare initial and subsequent screens on all of the dependent variables mentioned above plus one additional one. Chart 9 shows that the mean healthiness rating improved marginally from 7.57 for initial screens to 7.63 for subsequent ones. The increase was especially large for teenagers. Three of the differences shown in Chart 9, including the difference for all ages combined, were statistically significant for a one-tailed t test at the 0.05 level of confidence.

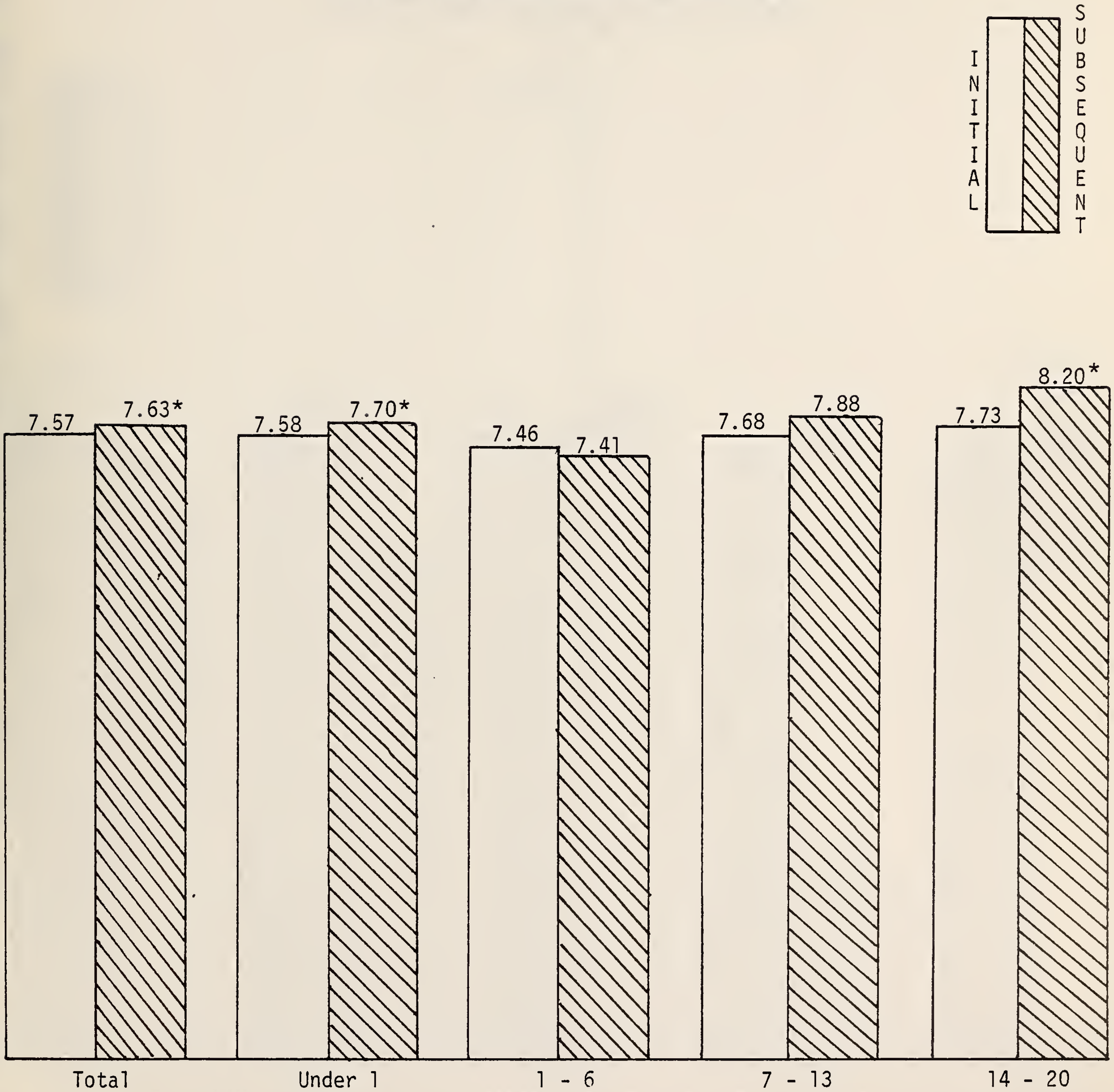
Problem severity ratings improved marginally for infants (from 2.394 to 2.302) but rose for everyone else. None of these differences (Chart 10) was statistically significant.

The next chart shows that 9.7% of the children needed additional immunizations after their first screen, but that only 7.4% needed them after subsequent screens. Improvements were large at every age, especially after infancy, but only the overall difference and the difference at ages one to six were statistically significant.

Dental finding rates were likewise much lower at rescreens, with an overall decrease from 3.9% to 0.4%. (The latter figure is greatly biased by the fact that most rescreens were on infants, however, since infant screens reported no dental problems.) The difference at ages one to six was again statistically significant.

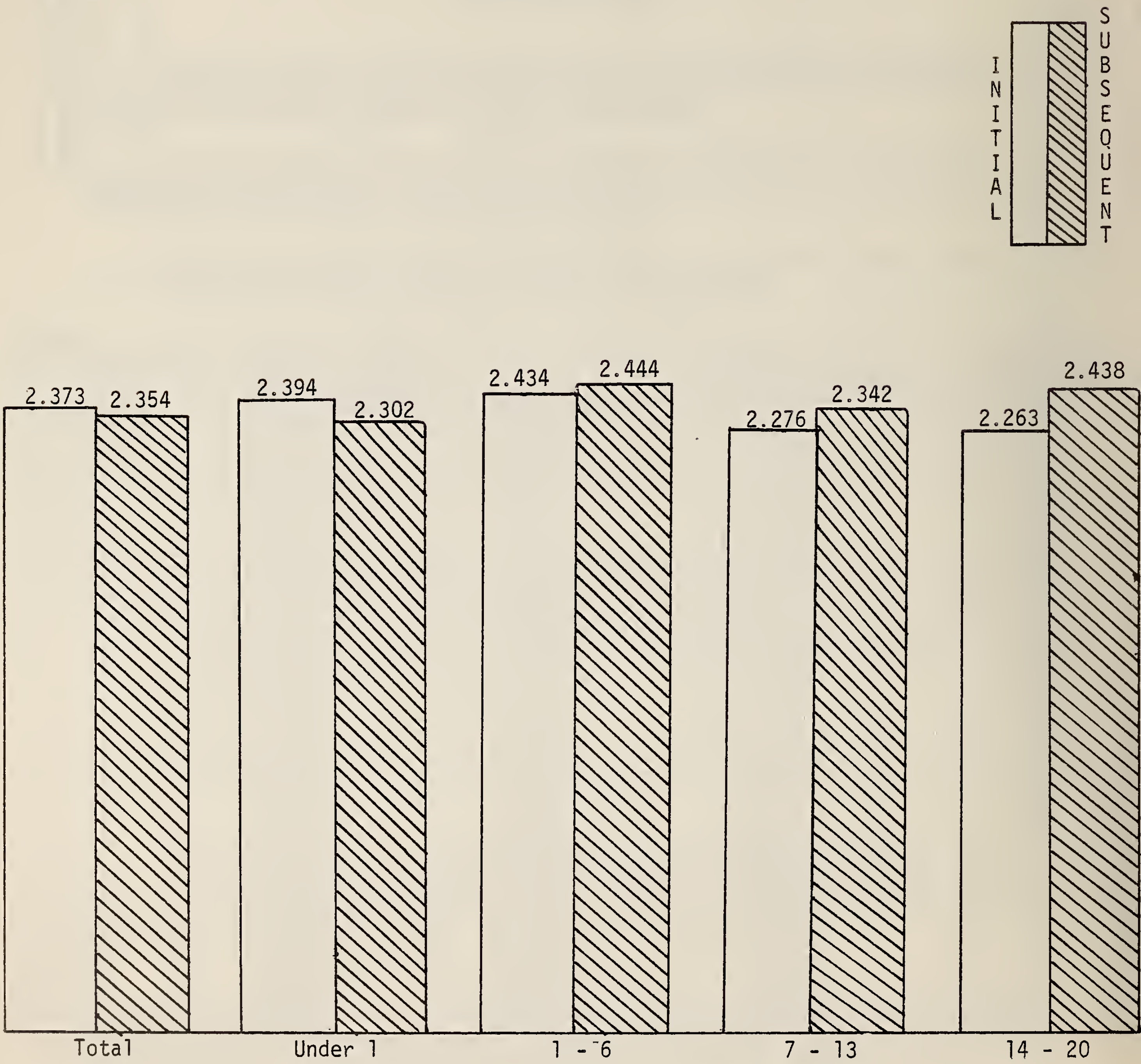
Finally, Chart 13 shows the mean numbers of problems reported at each initial

Chart 9: Mean Healthiness Ratings for Initial and Subsequent Screens, by Age



*Significantly greater than result for initial screens.

Chart 10: Severity Ratings of Problems Found at Initial and Subsequent Screens,* by Age



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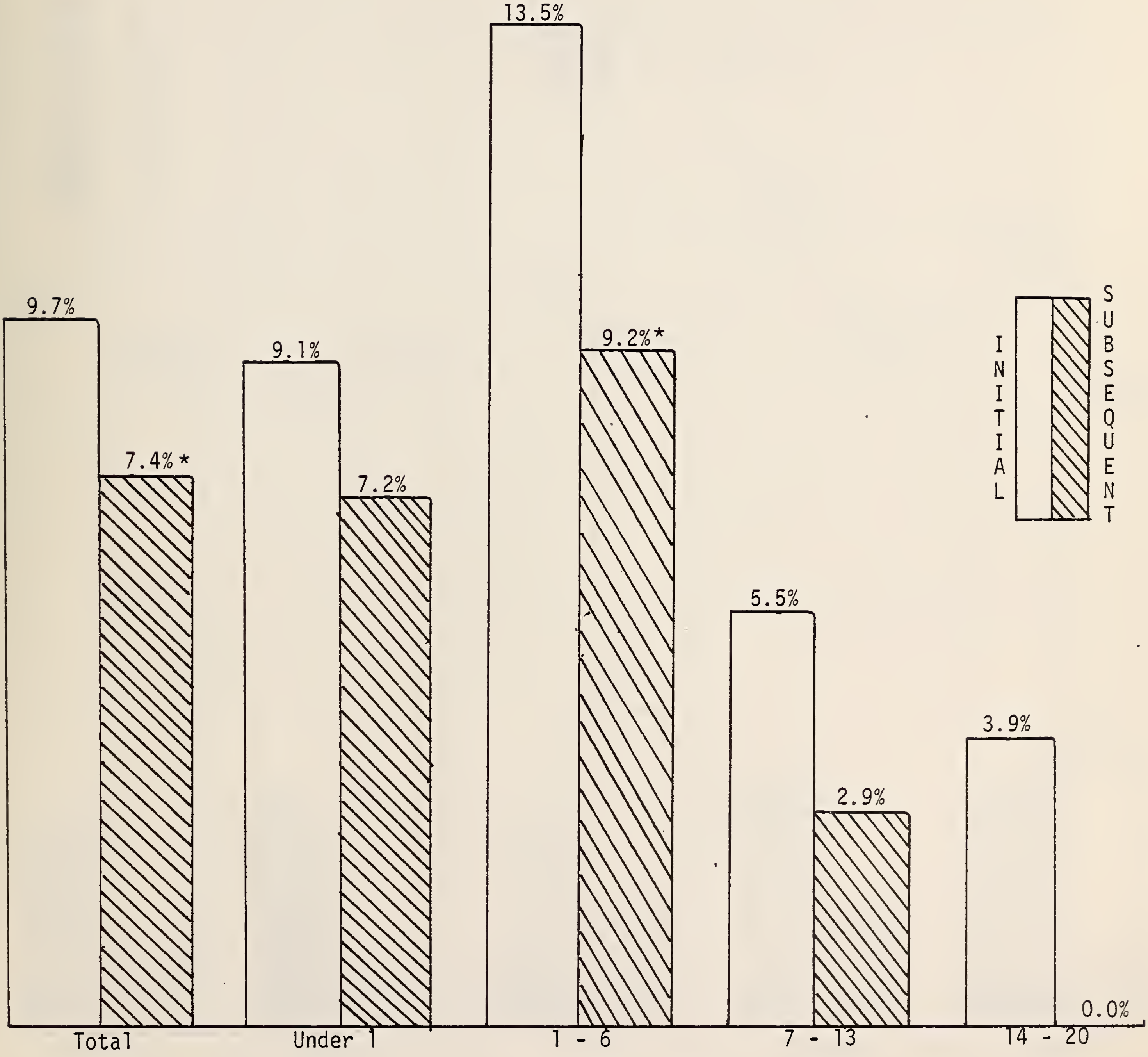
*Lower scores mean problem was less severe. Ratings were omitted from approximately 60% of problems.

Chart 11: Proportion of Children Needing Additional Immunizations After the Day of Screen: Comparison of Initial and Subsequent Screens



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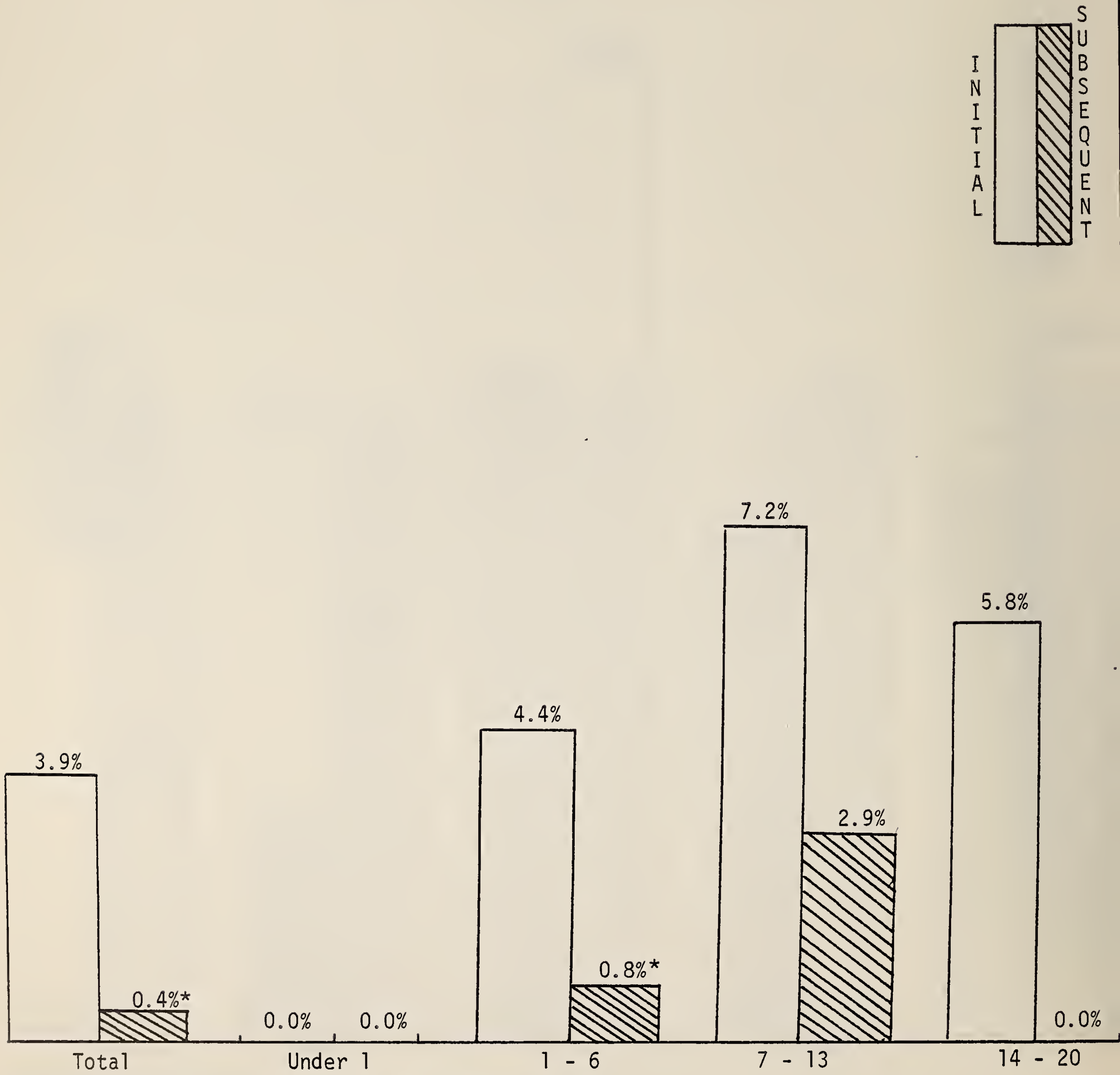
*Significantly lower than result for initial screens.

Chart 12 : Dental Finding Rate Comparing Initial and Subsequent Screens



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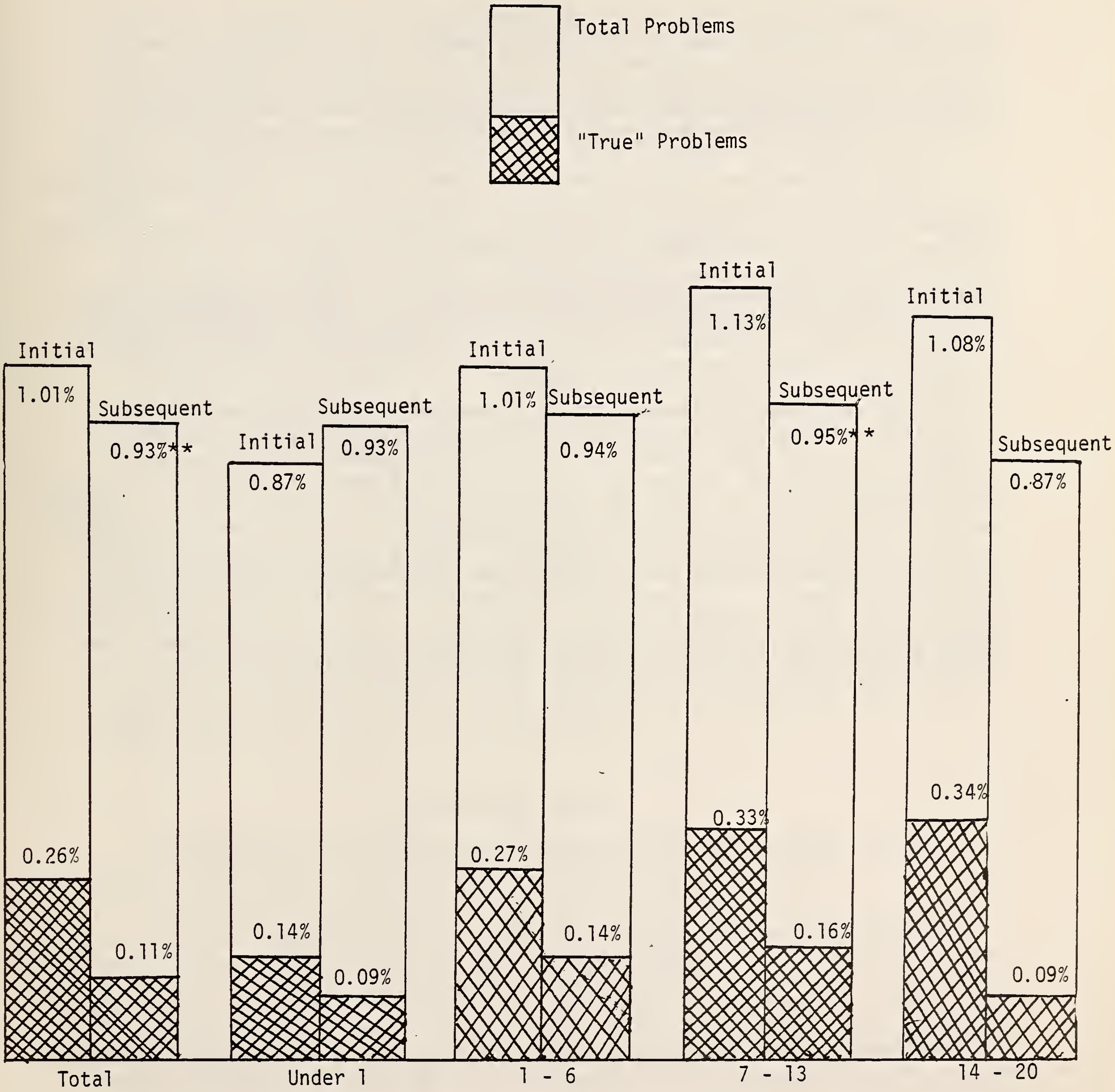
*Significantly lower than result for initial screens.

Chart 13: Mean Number of Problems Found at Initial and Subsequent Screens: Total and "True"* Problems



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* See Chapter 16 for definition. Rates exclude immunization deficiencies.

**Significantly lower than result for initial screens.

and subsequent screen using two different definitions of "problem." The left hand side of the chart shows that initial screens in this project reported an overall average of 1.01 problems per screen, while subsequent screens averaged 0.93. Infants tended to have increased number of problems at later screens, but all other age groups showed decreases ranging from 7 to 20%. As noted on the chart, several of these decreases were statistically significant.

The "true" problem finding rates in the lower section of each column include only those problems which definitely did not cause the screen to occur. (See Chapter 16 for a more thorough discussion of how we defined this.) These figures include primarily preventive health conditions and thus show the true EPSDT problem finding rate. They are drastically lower for subsequent screens than they are for initial ones: in total 0.26 versus 0.11. Every age group except infants showed at least a 50% decrease at rescreens. Significance tests are not shown here because the method of rate calculation makes them very difficult, but we have no doubt that most or all of these differences are significant.

Every single one of these measures, except that for problem severity, shows that children were healthier and evidenced greater preventive health orientation at rescreens than they did at initial screens. There are two possible explanations: either healthy children were more likely to get rescreened than unhealthy ones, or the initial screen itself improved health status.* Either way, these conclusions support the need for aggressive outreach and rescreen monitoring: if the unhealthy children are less likely to get rescreened at present, then further efforts are needed to bring them in because they stand to benefit more from treatment. If screening itself improves preventive health orientation, then clearly more children need to be exposed to it. A truly valid study of the long term benefits of EPSDT needs more longitudinal data than we have here, but the evidence suggests that health benefits do, indeed, occur.

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*The first explanation could be tested by evaluating only those children with at least two screens, but the present set-up of the data file does not permit this.

# CHAPTER 10

# PROJECT OBJECTIVES

The project's second year grant application stated seven specific objectives, and the achievement toward each is summarized in this chapter. In most cases, detailed results are discussed in other chapters, as referenced in parentheses.

## A. Treatment Initiation and Completion

"Increase the problem completion rate to 85% of the problems found during screening and confirmed by diagnosis with necessary treatment beginning within 60 days of completed screen."

Chapter 8 showed that 87.9% of problems reported during the experimental phase received initial treatment within sixty days after screening; Chapter 6 showed that 82.6% of problems were eventually resolved. This objective, in brief, was partially achieved.

## B. Immunizations

"Increase the immunization completion rate to 85% of children screened in project."

Table 6 showed that 94.7% of children screened during the control phase of the project were current in their immunizations, either as they left the screen or through subsequent treatment. Case monitoring increased this proportion to 95.3%. The project had little effect on immunization levels, but this was because there was little room for improvement.

## C. Rescreen Ratios

"Increase the rescreen rate within 14 months to 85% of those children still eligible for the program and residing in the project area."

This objective is difficult to evaluate because computerized records were only kept for completed screens. Chapter 4 above showed that experimental group infants received 74.1% of their expected number of rescreens and that over 70% of the remainder were missed because of loss of eligibility, departure from the area, or inability to contact. Children over one year received 44.5% of their expected rescreens, with 83.4% of the failures due to the reasons listed above. This objective, in other words, was almost certainly achieved, even though we cannot determine the precise proportion of eligibles that were rescreened.

### Table 6: Immunization Status Before, During and After Screening*

| | Current at Screen Completion | | Brought Current Later | Total |
|---|---|---|---|---|
| | Current Before | Brought Current | | |
| | | CONTROL | | |
| Total | 44.3% | 47.7% | 2.7% | 94.7% |
| Under 1 | 38.1 | 55.3 | 3.4 | 96.8 |
| 1-6 years | 42.6 | 44.7 | 3.6 | 90.9 |
| 7-13 " | 57.6 | 38.8 | 0.4 | 96.8 |
| 14-20 " | 66.2 | 32.5 | 0 | 98.7 |
| | | EXPERIMENTAL | | |
| Total | 48.6% | 41.6% | 5.1% | 95.3% |
| Under 1 | 43.1 | 47.8 | 5.1 | 96.0 |
| 1-6 years | 45.1 | 42.1 | 6.2 | 93.4 |
| 7-13 " | 62.0 | 31.7 | 3.7 | 97.4 |
| 14-20 " | 65.0 | 30.4 | 1.7 | 97.1 |

*Table A-10 is a somewhat more detailed version of this table.

## D. Reporting System

"To implement a reporting system that will provide information about types of problems identified, diagnosis made, and treatment provided."

A thorough reporting system was developed and tested. See Chapter 15 for details.

## E. Costs of Diagnosis and Treatment

"To determine the costs of diagnosis and treatment, both under the existing and innovative systems."

HSRI, with the project's assistance, reviewed 27 months of cost data for approximately 1500 children. The results of this study are described in Chapter 13.

## F. Effectiveness of Case Monitoring

"To determine the effects of a formal case monitoring program upon rates of screen/rescreen completions, problem resolutions, case completions; upon the timeliness of treatment provided and the outcomes of treatment."

The results of these analyses are detailed in Chapters 3 through 8.

## G. Cost-Benefit Analysis

"To complete a cost-benefit analysis for any positive effects that are found."

The methodology used in these calculations is described in Appendix D, while the actual results are presented in pertinent chapters of Section Two.

# SECTION THREE

# THIRD YEAR SUBSTUDIES

## CHAPTER 11

## LIMITED CASE MONITORING

During the first thirteen months of the experimental project, all reported problems were followed up until one of the following outcomes had occurred:

- treatment was completed (problem resolution);
- child dropped from project (treatment refusal, lost to follow-up, loss of eligibility, family moved); or
- six months had passed since the screen.

Children were followed, in other words, for as long as they had any potential need for assistance, even though, as control group results showed, many would have reached problem resolution without CHW intervention.

Results from a small sample in the Dallas EPSDT project, however, had shown that monitoring only to the first visit after screen was just as likely to lead to problem resolution as was full (or extended) case monitoring as defined above.* If this proved to be the case in Pierce County, limited monitoring would naturally be more cost effective than extended monitoring because costs would be lower for equal outcomes. As part of its third year funding application, the project proposed a formal study of the costs and effectiveness of this reduced degree of case follow-up.

### Methodology

In subsequent discussions in Pierce County, the full degree of case monitoring practiced during the first thirteen months became known as extended case monitoring (ECM), while the more restricted variety of the third year was called limited case monitoring (LCM). To quote from the project's third year grant application:

> Beginning on October 1, 1978, the Project will limit case monitoring to the first visit after screening, so that problems that require more than one visit will not be given additional case monitoring. During the limited case monitoring period (October 1, 1978 to March 31, 1979), patients will be assisted in arranging their first visit after screening, but will not then be recontacted until four months later. (For 66.7% of referred problems, this first visit after screening will actually be the second treatment visit, since two-thirds of all referred problems are treated initially at the time of screening.) Between the third and fourth months after screening, the Health Services Research Institute (HSRI) will issue a follow-up roster. Project staff will then obtain Medicaid patient profiles on these patients and will contact their parents (and if necessary the

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*Health Services Research Institute, 1978. EPSDT in an Urban Setting - Dallas, Texas: Final Evaluation Report.

treatment provider) to determine the following:

1) whether the patient showed for the first visit after screen;
2) whether additional visits were required; and
3) whether treatment was completed.

Outcomes will be recorded on the Project's medical referral form, using the same case closure statuses as were used in the control and ECM periods.

Procedures for infant rescreens were also affected by the switch to LCM, and these will be discussed separately below.

## A. Case Conversions under LCM

"The proportion of cases converted from unwell to well will be the same in the LCM group as in the ECM group."

A case, it will be recalled (see Chapter 5), consists of all of the problems reported from a single screen, while a converted case is one in which treatment was completed for all referred problems. (See Appendix E for a list of possible problem closure status.) Chart 14 shows that 65.6% of ECM cases were converted, compared to 60.9% of LCM ones. The difference is slight and not of statistical significance. Only the difference among TPCHD cases is significant; here the proportion converted fell from 59.4% with extended monitoring to 41.1% with LCM. The first hypothesis of the third year proposal is supported. (See Table A-3 for further details.)

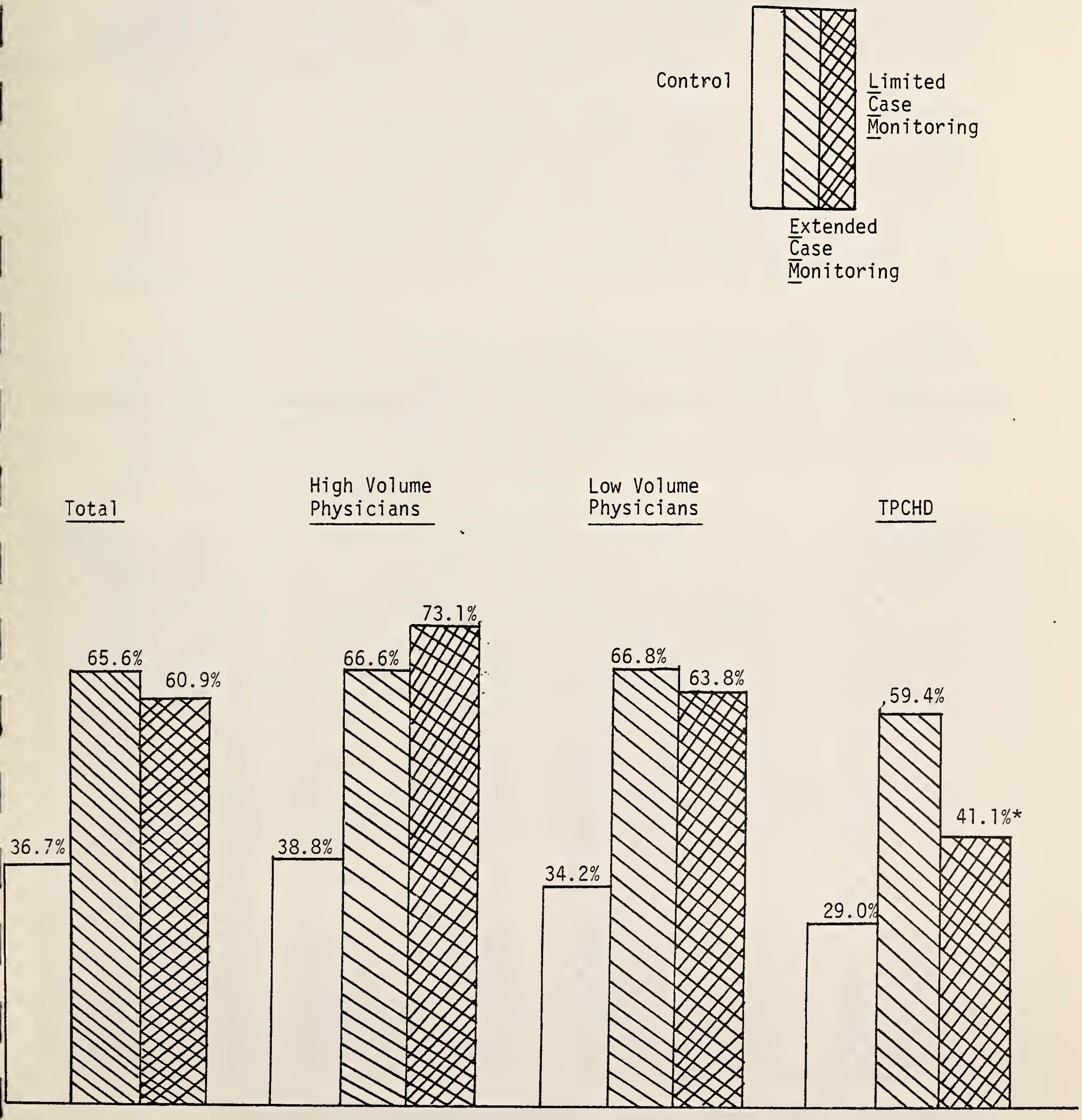
As further explained in Appendix D, monitoring and associated overhead cost $9766 for the total of 356 LCM cases that were followed. The cost per case was $27.43, compared to $46.89 with extended monitoring. Per converted case, the cost was $62.60 under LCM and $86.35 under ECM. On either of these bases, LCM would appear to be more cost effective than ECM. The ultimate measure of cost effectiveness, however, must take account of the cases that would have been converted on their own without follow-up of any kind (as in the control group). After subtracting these cases, the cost per "extra" conversion was $177.05 under ECM and $171.33 under LCM. There is, in other words, no cost advantage to LCM; although it cost less than ECM on per case followed and per case resolved basis, its ultimate cost effectiveness was virtually the same as ECM's.

## B. Problem Resolutions under LCM

"The proportion of problems that are resolved will be the same in the LCM group as in the ECM group."

As discussed earlier in Chapter 6, a resolved problem is analogous to a converted case except that each problem is considered individually. (See Appendix E for a classification of case closure statuses.) Chart 15 shows that the difference between ECM and LCM can be looked at in four overlapping subsets

Chart 14 : Proportion of Cases Converted, Comparing LCM with ECM and Control Cases **



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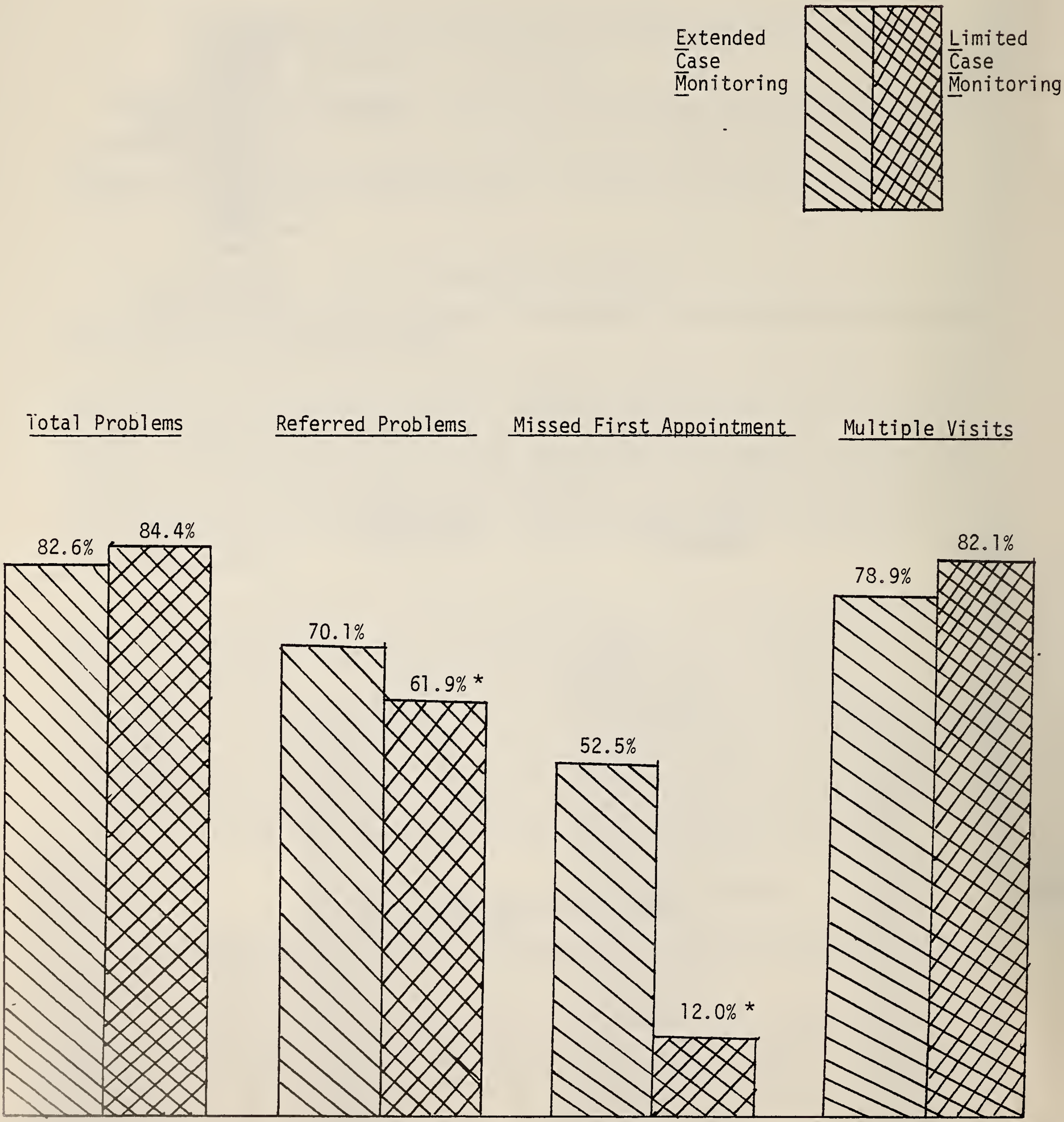
*Significantly different from ECM result.

**There were insufficient cases from community clinics for presentation here.

Chart 15 : Proportion of Problems Resolved with Extended and Limited Monitoring



*Significantly lower than results for extended case monitoring group.

of problems.

If we look at all problems reported, regardless of whether or not treatment was needed after screening, we see that 82.6% were resolved with extended monitoring and that 84.4% were resolved with LCM. There is, in other words, no overall difference between limited and extended monitoring.

Later on in this report (Chapter 17), however, we will see that the proportion of problems fully treated during the screen itself rose from 37.9% during the extended monitoring phase to 52.7% during limited monitoring. This change was not at all due to the type of monitoring used, since only referred problems (that is, those needing treatment after screening) were given either kind of follow-up. The proportion resolved among referred problems is a more refined measure; it shows that ECM resolved 70.1% of problems, compared to 61.9% resolved by LCM. This is a small but statistically significant difference in favor of extended monitoring.

Limited case monitoring followed exactly the same procedures as extended monitoring through the scheduling of the first visit after screening, and Chapter 17 will show that 79.1% of experimental problems were resolved without any additional monitoring required. LCM, in other words, differed from ECM for only 20.9% of total problems (36.3% of referred problems). There were two reasons for LCM differing from ECM for this minority of problems: either the child missed his or her first appointment after the screen or multiple treatment visits after screening were required.

During the ECM phase, all families were contacted shortly after a scheduled appointment, and those who missed the first appointment were offered additional assistance. LCM clients were not contacted until at least four months had passed since screening, and they were not offered further help at the time of the missed appointment. Chart 15 shows that the former approach was far more effective: 52.5% of those who missed their first appointment but got further help eventually reached treatment resolution, compared to only 12% without such assistance. Monitoring clearly benefitted the approximately nine percent of children who missed their first appointment. (See Chapter 17 for further details.)

Chart 15 also shows, however, that those who needed multiple treatment visits after screening did equally well under LCM (82.1% resolved) as they did under EDM (78.9%). Once a child reaches his first treatment after screen, there seems to be little point in monitoring further; with or without monitoring, he is highly likely to get his problem resolved.

## Costs

As noted in the introduction to this chapter, the project's third year proposal anticipated that limited case monitoring would be just as effective as extended monitoring but at a somewhat reduced cost. We have seen that LCM was slightly less effective than ECM among referred problems and especially for children who missed their first appointment after screening, but we have not yet considered costs. Table 7 summarizes these cost figures and relates them to

### Table 7: Time and Financial Costs
### For Extended and Limited Problem Monitoring

| | Average CHW Time per Problem | Cost per Problem Followed | Cost per Problem Resolved | Cost per "Extra" Problem Resolved |
|---|---|---|---|---|
| All Problems | | | | |
| Extended Monitoring | 94 Minutes | $30.59 | $50.93 | $99.34 |
| Limited Monitoring | 59 " | 19.26 | 41.21 | 110.98 |
| Immunizations | | | | |
| Extended Monitoring | 55 " | 17.78 | 38.58 | 132.89 |
| Limited Monitoring | 49 " | 15.90 | 35.78 | 128.80 |
| Dental | | | | |
| Extended Monitoring | 51 " | 16.70 | 32.87 | --* |
| Limited Monitoring | 34 " | 10.95 | 23.11 | --* |
| Other Medical | | | | |
| Extended Monitoring | 103 " | 33.40 | 53.14 | 86.91 |
| Limited Monitoring | 64 " | 20.78 | 44.05 | 91.61 |

*Case monitoring had no effect on resolution rates.

problem resolutions. (See Appendix D for a discussion of the costing methodology.)

The first column of Table 7 shows that substantially less time was spent on LCM problems than had been spent on ECM. The average LCM problem took 59 minutes of CHW time compared to 94 minutes under ECM. (LCM figures do not include the cost of the four-month follow-up since this was a research rather than a service cost.) The greatest time savings was for "other medical problems" where time requirements fell from 103 minutes to 64 minutes per problem followed.

Limited case monitoring for all 1018 screens during this period cost $9766, or $9.59 per screen. This was less than half of the $20.79 incurred per screen during the extended period, but part of the reduction was due to the lower referral rate during the LCM period. (See Chapter 17.) On a per problem followed basis, the cost was $30.59 for extended monitoring and $19.26 for limited. Table 7 shows that both dental and "other medical" monitoring were especially cheap during the ECM phase.

As noted in previous chapters, however, the cost per screen or per problem followed measures only half of the cost-effectiveness equation, and we must take account both of the proportion of problems resolved and of the number that would have been resolved without any monitoring. Table 7 shows that ECM was still somewhat costlier than LCM on a per problem resolved basis, with especially large differentials for dental and "other medical" problems. The average cost per problem resolved was $50.93 with extended monitoring and $41.21 with limited.

The final column of Table 7 shows the monitoring cost per "extra" problem resolved for both the ECM and LCM groups. "Extra" problem resolutions are above and beyond those that would have occurred without any monitoring at all (as in the control group). There is no cost shown for dental problems, for example, because neither limited nor extended monitoring apparently resolved any dental problems that would not have been resolved on their own. The cost per "extra" problem resolved is actually slightly higher for LCM problems than it is for ECM: $110.98 versus $99.34. When we consider both cost and effectiveness, in other words, extended monitoring is actually somewhat more effective than limited monitoring. The difference is only partially due to the slightly lower problem resolution rate under LCM; it is also due to the fact that a higher proportion of LCM problems were still under treatment after six months. The difference in cost effectiveness between the two groups is not large, but the original expectation that LCM would be more cost effective than ECM has clearly not been supported.

### C. Infant Rescreens under LCM

"The ratio between actual and expected rescreens will be the same with both limited and extended case monitoring."

To quote from the project's third year proposal:

During the period of the limited case monitoring study (October 1, 1978 to

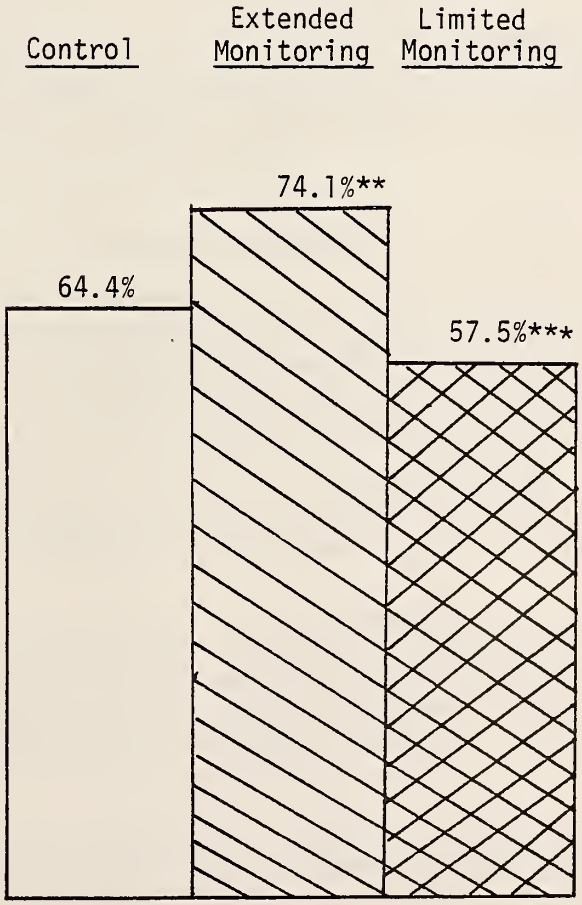
March 31, 1979), infants who enter the Project will be assisted to obtain their first recommended rescreen, but no effort will be made to schedule additional rescreens. Follow-up procedures will be the same as those with limited case monitoring for problem follow-up. Between the third and fourth months after screening HSRI will issue a follow-up roster. Project staff will then obtain Medicaid patient profiles on these infants, and will contact their parents to determine the following:

1) whether the infant showed for the recommended rescreen;
2) whether additional recommended rescreen appointments were made and kept;
3) whether the rescreen sequence was completed.

Chart 16 shows that LCM clients under one received 57.5% of their expected rescreens, compared to 64.4% in the control group and 74.1% under ECM. In the control group, clients received no assistance at all; while with limited monitoring they were helped to their first rescreen; so it is somewhat surprising that LCM infants did worse than the control group. In any case, the project's hypothesis was not supported.

Cost calculations for infant rescreens are described in detail in Appendix D, but results are summarized in Table 8. Extended monitoring cost more than limited monitoring per expected and per actual rescreen, but the money spent on limited monitoring had no effect on rescreen rates. The cost per expected rescreen was $12.81 with extended monitoring and $9.14 with limited; per successful rescreen, costs were $17.30 and $15.92 respectively. LCM costs per rescreen would almost certainly have declined with time because they were entirely concentrated on the first rescreen; in a longer project, they would have been "amortized" over a full schedule of four rescreens.

Chart 16 : Ratio between Actual* and Expected Infant Rescreens



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*Duplicate screens in the same time period are excluded. See text.
**Includes children who entered the project after May 1, 1978 only.
***Significantly less than ECM result.

## Table 8: The Cost of Monitoring Infant Rescreens*

| | Average CHW Time | Cost per Expected Rescreen | Cost per Actual Rescreen | Cost per "Extra" Rescreen |
|---|---|---|---|---|
| Extended Monitoring | 39 minutes | $12.81 | $17.30 | $132.49 |
| Limited Monitoring | 28 " | 9.14 | 15.92 | --* |

*See notes in Appendix D.

# CHAPTER 12

## DENTAL AND FAMILY PLANNING SUBSTUDIES

### A. Dental

"Problem finding rates for dental problems will increase significantly when a dental hygienist is added to the regular screening staff."

Regular screeners in the Pierce County project reported dental problems from only 4.9% of the screens on children over three, and this was far below expectations. (See Chapter 16 for additional discussion.) The evidence suggested strongly that dental screening was not being done or was not being done properly, and so in August, 1978, the project hired a part-time dental hygienist to conduct independent examinations. The results of this experiment are fully described in the project's report, which is attached as Appendix F.

As Chart 17 indicates, the dental hygienist reported dental problems from 56% of the fifty EPSDT screens which she performed on children over three. This difference is highly significant both statistically and substantively, and it strongly supports the project's hyposthsis.

### B. Family Planning

During its third year of operation, the project also established an inter-agency linkage with the Tacoma-Pierce County Family Planning Clinic. The proposal for this linkage is attached as Appendix G, and a detailed analytical write-up is available from the Washington Department of Social and Health Services. This substudy had two objectives which the project asked HSRI to evaluate:

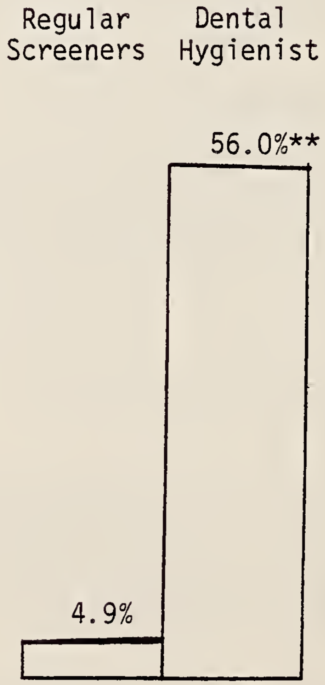
1) To determine the costs of providing extended case monitoring to treatment completion for conditions identified as a result of the Family Planning/EPSDT screen.

2) To assess the effects of this extended case monitoring system on treatment outcomes by measuring the following proportions:
    a) the proportion of cases converted from unwell to well
    b) the proportion of problems that are successfully resolved, and
    c) the proportion of problems receiving initial treatment within sixty days after screening.

Objective 5 cannot be addressed here because separate time records were not kept for family planning follow-up. Objective 6 can be addressed but only with slight statistical confidence because of the small number of problems reported.

During the first eight months of this substudy (December, 1978 through July, 1979), the TPCHD family planning clinic reported 51 screens and 39 problems to

Chart 17 : Proportion of Screens* Reporting Dental Problems



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*Children over three only.
**Significantly greater than result for regular screeners.

the project. As Chart 18 shows, most of the reported problems were of a preventive "EPSDT" nature, suggesting that the need for preventive screening is quite high in this age group. The project calculated that the marginal cost of adding EPSDT components to the family planning screen was about four dollars; andin this respect, it might have been one of the most cost effective screening providers in the project.

The following statistics indicate the results of case monitoring:

- proportion of cases converted: 15.4% (N=13)
- proportion of cases retained: 15.4% (N=13)
- proportion of total problems resolved: 38.7% (N=31)
- proportion of referred problems resolved: 9.5% (N=21)
- proportion of total problems initially treated within sixty days: 45.2% (N=31)
- proportion of problems not treated at screen that were subsequently treated within sixty days: 10.5% (N=19)

Although based on small case sizes (as indicated by the numbers in parentheses), these results suggest that monitoring was unusually difficult for problems reported from the family planning clinic. This may be partly because the health worker involved had to be very careful in contacting clients at home so as to maintain confidentiality, and she was able to contact only the children rather than the parent. Moreover, 18 of the 39 reported problems were either dental caries or immunizations, and results elsewhere in this report suggest that these problems were less likely than others to be resolved.

## Chart 18: LIST OF PROBLEMS REPORTED FROM FAMILY PLANNING SCREENS

| ICDA | Description | Quantity |
|---|---|---|
| 0 | Immunizations | 8 |
| 98.0 | Gonococcal infection (acute genitourinary) | 1 |
| 112.0 | Moniliasis | 1 |
| 134.1 | Phthirus infestation | 1 |
| 277.1 | Obesity NOS | 1 |
| 285.9 | Anemia | 1 |
| 370.9 | Refraction error NOS | 3 |
| 381.0 | Otitis media (acute) | 2 |
| 389.9 | Impairment of hearing NOS | 1 |
| 410.0 | Hypertensive disease | 1 |
| 462.0 | Acute pharyngitis | 1 |
| 521.0 | Dental caries | 10 |
| 610.0 | Chronic cystic disease of breast | 1 |
| 615.9 | Other diseases of ovary and fallopian tube | 1 |
| 621.9 | Other diseases of cervix | 1 |
| 622.1 | Vaginitis and vulvitis | 4 |
| 781.1 | Symptoms referable to nervous system and special senses - Oculomoton disturbance | 1 |
| | | 39 |

# SECTION FOUR

# MEDICAID COSTS

# CHAPTER 13

## MEDICAID COSTS*

One of the state's major concerns in planning for an expanded EPSDT program was whether such a program would add significantly to the state's medical welfare costs, as paid for under Medicaid. While acknowledging the assertion that cost reductions might occur over a longer time period,** the state was concerned that shorter term costs for expanding EPSDT might be greater than the penalties for non-compliance with federal regulations. Surveys *** in other states had found little or no cost increments, but circumstances differed somewhat in Washington, and this might have affected results.

In order to evaluate this question, HSRI and project staff in Tacoma drew a sample of 1259 children to analyze their Medicaid costs before and after screening. (See Appendix J-1 for a discussion of the sampling procedure.) Medicaid profiles were obtained (on two separate occasions) covering the 27 months between October 1, 1976 and December 31, 1978. A cutoff date was assigned to each child: for those with screens, this was the date of the first screen reported during the study period, while for unscreened children the date October 31, 1977 was arbitrarily assigned.

To quote from the project's third year grant application:

"Four types of analyses will be performed:

A. Cost per Child: The average monthly Medicaid cost is being sought, exclusive of screening costs. This is being sought for both screened and unscreened individuals, for periods both before and after screening (if any).

B. Treatment Cost per Child and per Problem: Problems found at screening will be linked with treatment costs for those problems both before and after screening.

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*The Medicaid Cost Study benefitted greatly from the research assistance of Greg Terrill and Robert Brunell.

**Britt, Arthur E., Harold D. Dickson and J. Lindsey Bradley. 1974. The Early and Periodic Screening Diagnosis and Treatment Program: A Twenty Year Cost/Benefit Analysis. San Antonio: Health Services Research Institute.

***Health Services Research Institute. 1978. Final Evaluation Report-Phase IV: EPSDT Demonstration in an Urban Setting, Dallas Texas
Community Health Foundation. 1977. Cost Impact Study of the North Dakota EPSDT Program.
Health Services Research Institute. 1978. EPSDT Diagnosis and Treatment: A Five State Analysis.

C. Treatment Costs by Type of Problem: The average treatment costs will be sought for certain problems commonly found during screening (vision, dental, otitis media, dermatological, perhaps other). The objective is to see if screening reduces costs through early detection. Data are, therefore, required for both screened and unscreened individuals, for periods both before and after screen (if any).

D. Health Care Utilization Patterns: We wish to determine two things under this heading:

(1) whether persons volunteering for screens had different utilization patterns before the screen than those who did not get screens (in other words, does EPSDT bring people into the health care system, or is it merely an extra benefit for those already in the system?)

(2) whether EPSDT changes utilization patterns for those who do get screened.

Utilization will be measured in terms of cost. Emergency room use will be of particular interest."

## Methodological Notes

Table J-2 shows that the final sample for the Medicaid study included 1259 children, of whom 763 (60.6%) were screened one or more times during the study period. Eight-eight of these were from the supplemental sample and were given a double weight; hence, the tables in this report are based on a weighted sample of 1347 children. About two-fifths of these (39.4%) were not screened at all during the 27 month period under study, while 39.0% received one or more experimental project screens. The remaining 21.6% were screened only outside the the project or in the control group.

The age distribution of children differs substantially from one screening category to another and is, of course, partly a reflection of the way in which the sample was selected. The bottom section of Table J-2 shows that 35.1% of the screened children were below age one at the cutoff date compared to 17.2% in the unscreened group. One quarter (25.5%) of the latter group were over 14 compared to 8.4% of the former. The actual age distribution of clients in any future EPSDT program will depend on the type of outreach method that is used, and so major emphasis in this report will be placed on the individual age groups rather than on the total.

Table J-4 shows the proportion of time during which respondents were eligible for Medicaid. Screened children were eligible 68.5% of the time between October 1, 1976 and the first screen, while unscreened children were eligible 62.1% of the time between October 1, 1976 and October 31, 1977.

The differences were even larger after the cutoff data - 67.2% for screened children versus 45.2%. It appears that the longer a child is on welfare, the more likely he or she is to get screened.

Our immediate objective in analyzing this sample was to calculate the average cost per child before and after first screen or October 31, 1977. Children in the sample had experienced a variable number of months between October 1, 1976, and that date, however, and so it was only possible to make comparisons on a per month basis. Each child's total costs before and after screening were, therefore, divided by the number of months experienced before and after screening.

Months of experience were considered in two different ways. The first was to count all months, regardless of whether or not the child was eligible for Medicaid during the full time. The second way was to include months of eligibility only. The first way is probably the best for state planning purposes because children do go on and off welfare, but it confuses changes due to EPSDT with changes due to eligibility loss. (We have already seen above that unscreened children were eligible for a smaller proportion of time after the cutoff date than were screened children.) The discussion below utilizes tables based on months of eligibility, but unadjusted tables are included in Appendix J.

Children in the sample contributed a variable number of person-months to the study and were weighted accordingly. A child with ten months of eligibility before screening, for example, contributed ten times as much to our results as did a child with only one month. Our actual unit of analysis was, therefore, person-months rather than persons*.

## Cost Calculations

### Costs before Cutoff Date

Table 9 shows the average monthly cost for screened and unscreened children both before and after the cutoff date. The total for the unscreened groups was $26.00, while the age standardized total for the screened group was $28.51.**

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*Table J-5 shows the distribution of person months in the sample.

**Age standardization was essential: a) because the distribution of children by age was very different in the screened and unscreened groups (Table J-2): and b) because infants cost much more per month than did older children. Had we not standardized, the total results for the screened group would have been distorted by the large number of infants in that group.

Standardization is a demographic technique which, in this case, removes the effect of age differences. The standard population used here was the distribution of person-months before the cutoff date for unscreened children. For further discussion, see: U.S. Bureau of the Census, The Methods and Materials of Demography, Henry S. Shryock, Jacob S. Siegel, and Associate, Second Printing (rev.), U.S. Government Printing Office, Washington, D.C. 1973.

TABLE 9: AVERAGE MONTHLY MEDICAID COST PER CHILD BEFORE AND AFTER CUTOFF(1), ADJUSTED FOR ELIGIBILITY

BEFORE CUTOFF

| | | <1 | 1-6 | 7-13 | 14-20 | Total | Std. (2) |
|---|---|---|---|---|---|---|---|
| NOT SCREENED | Office | $ 2.83 | $ 2.65 | $ 2.66 | $ 4.55 | $ 3.26 | $ 3.26 |
| | Hospital Inpatient | 86.28 | 6.71 | 0.99 | 19.60 | 15.14 | 15.14 |
| | Emergency Room | 1.18 | 1.67 | 0.98 | 2.32 | 1.61 | 1.61 |
| | Other | 1.35 | 3.46 | 4.57 | 11.03 | 6.00 | 6.00 |
| | TOTAL | $91.62 | $14.50 | $ 9.20 | $37.50 | $26.00 | $26.00 |
| SCREENED | Office | $ 4.77(4) | $ 3.42(4) | $ 4.24(4) | $ 6.41(4) | $ 4.23(4) | $ 4.72(4) |
| | Hospital Inpatient | 79.46 | 7.13 | 7.34 | 7.53(4) | 17.54 | 13.03 |
| | Emergency Room | 2.67(4) | 3.05(4) | 1.78(4) | 2.52 | 2.58 | 2.45(4) |
| | Other | 15.63 | 3.93 | 7.56(4) | 11.30 | 7.57 | 8.31(4) |
| | TOTAL | $102.54 | $17.52(4) | $20.93(4) | $27.76(4) | $31.92 | $28.51 |

AFTER CUTOFF

| | | <1 | 1-6 | 7-13 | 14-20 | Total | Std. (2) |
|---|---|---|---|---|---|---|---|
| NOT SCREENED | Office | $ 2.46 | $ 2.98 | $ 2.63 | $ 4.89 | $ 3.25 | $ 3.42 |
| | Hospital Inpatient | 29.99 | 10.07 | 3.54 | 35.63 | 17.63 | 17.45 |
| | Emergency Room | 2.37 | 2.20 | 1.03 | 1.53 | 1.76 | 1.63 |
| | Other | 2.35 | 3.94 | 6.68 | 8.30 | 5.45 | 6.05 |
| | TOTAL | $37.18 | $19.20 | $13.87 | $50.35 | $28.10 | $28.55 |
| SCREENED | Office | $12.46<br>(11.73)(3)(4) | $ 8.09<br>(7.27)(4) | $ 7.21<br>(6.07)(4) | $ 9.22<br>(8.34)(4) | $ 9.53<br>(8.68) | $ 8.50<br>(7.57)(4) |
| | Hospital Inpatient | 17.44(4) | 5.78(4) | 6.44(4) | 21.48(4) | 11.08 | 11.78(4) |
| | Emergency Room | 3.29(4) | 2.36 | 1.64(4) | 2.51(4) | 2.56 | 2.25(4) |
| | Other | 4.52(4) | 6.28(4) | 8.41(4) | 9.82 | 6.31 | 7.92(4) |
| | TOTAL | $37.71<br>(36.99) | $22.51<br>(21.70) | $23.70(4)<br>(22.56) | $43.03<br>(42.14) | $29.48<br>(28.63) | $30.45<br>(29.52) |

(1)For screened children, the cutoff date was the date of the first screen recorded after October 1, 1976. For unscreened children, it was October 31, 1977.

(2)Total standardized on age distribution of unscreened children before the cutoff.

(3)Figures in parentheses exclude treatment costs on the day of screen.

(4)Significantly different from result for unscreened group (Z test at 0.05 level of confidence).

Table 9 makes it clear that screened children were higher utilizers of Medicaid services before the cutoff date than were unscreened children. Differences were especially large and significant for office, emergency room and "other" costs. Screened children had somewhat lower inpatient hospital costs, however. These results provide further support to our belief (see Chapter 16) that the sick visit was the major mode of recruitment into EPSDT in Pierce County.

## Costs after Cutoff Date

Costs after the cutoff date* were higher than before for both screened and unscreened children, except among infants. (The high initial costs for infants were undoubtedly related to hospitalization and other expensive problems just after birth; these would naturally be expected to decline over time.) Screened children, in general, remained somewhat higher Medicaid utilizers than unscreened ones, particularly for office costs.

## Changes after Cutoff

The most interesting comparisons in Table 9 are those for cost changes over time for the screened and unscreened groups. These are summarized in Table 10 in terms of percentages.

The overall monthly cost to Medicaid was 9.8% higher for unscreened children after the cutoff date than it had been before. For screened children, the rise was 3.5%. The difference of 6.3 percentage points between these two increases may be considered to be the cost savings due to EPSDT.

The internal differences within Table 10 are even more interesting than the totals. For screened children, the cost of office visits rose by a remarkable 60.4% compared to only a 4.9% increase for unscreened children**. In every other category, however, the cost for screened children fell while that for unscreened respondents rose. Hospital costs rose by 15.3% for unscreened children, but fell by 9.6% for those with screens. Emergency room costs rose by 1.2% for the first group but fell by 8.2% for the second. "Other" costs rose by 0.8% for unscreened children but fell by 4.7% for the others.

These cost changes indicate a clear shift in utilization from the hospital and emergency room to the doctor's office. This is exactly what EPSDT was intended to do and must be considered a signifant benefit of the program.

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*The figure for costs after screening excludes the screen day itself. Chapter 16 below will show that approximately 60% of medical problems reported to the project actually caused the office visit at which the screen occurred. These costs, therefore, cannot be attributed to EPSDT.

**The cost of rescreens was counted as an office cost and was undoubtedly responsible for much of the rise, at least among infants.

TABLE 10: PERCENTAGE CHANGE IN AVERAGE MONTHLY MEDICAID COSTS(1) BEFORE AND AFTER THE CUTOFF DATE,(2) ADJUSTED FOR ELIGIBILITY

| | Under 1 | 1-6 | 7-13 | 14-20 | Standardized Total (3) |
|---|---|---|---|---|---|
| Office | | | | | |
| Unscreened | -13.1% | 12.5% | -1.1% | 7.5% | 4.9% |
| Screened | 145.9 | 112.6 | 43.2 | 30.1 | 60.4 |
| Hospital Inpatient | | | | | |
| Unscreened | -65.2 | 50.1 | 257.6 | 81.8 | 15.3 |
| Screened | -78.1 | -18.9 | -12.3 | 18.5 | -9.6 |
| Emergency Room | | | | | |
| Unscreened | 100.8 | 31.7 | 5.1 | -34.1 | 1.2 |
| Screened | 23.2 | -22.6 | -7.9 | -0.4 | -8.2 |
| Other | | | | | |
| Unscreened | 74.1 | 13.9 | 46.2 | -24.8 | 0.8 |
| Screened | -71.1 | 59.8 | 11.2 | -13.1 | -4.7 |
| Total | | | | | |
| Unscreened | -59.4 | 32.4 | 50.8 | 34.3 | 9.8 |
| Screened | -63.2 | 28.5 | 13.2 | 55.0 | 3.5 |

(1) Excludes screen day costs.

(2) For screened children, the cutoff date was the date of the first screen recorded after October 1, 1976. For unscreened children, it was October 31, 1977.

(3) Total standardized on age distribution of unscreened children before the cutoff.

## Controls for Cost before Screening

Can these changes actually be ascribed to EPSDT? One possible explanation for them is a sort of regression towards the mean. As seen earlier, EPSDT clients were higher than average medical care users in the year or so before the cutoff date, and it seems likely that at least some of them would eventually revert to an average utilization pattern even without screening. Children pass through good years and bad, and many of those with years of high utilization may follow them with low cost years. One way to test this hypothesis is to control for mean monthly costs before screening. This has been done in Table 11.*

Table 11 confirms that at least some of the changes between the two time periods may be attributable to regression towards the mean. In virtually every case children with low utilization costs (under $20 per month) before the cutoff show monthly increases afterwards, while those with high costs beforehand show decreases. Unscreened children with pre-cutoff costs under $5.00 rose from an average of $1.05 before the cutoff to $17.80 afterwards. Those in Group 2 ($5.00 to $19.99 before cutoff) rose from $10.93 to $17.22. Those with monthly expenditures over $100, however, fell from an average of $251.57 to $194.59. There does, indeed, seem to be some regression toward the mean.

The "total" columns in Table 11 are standardized on the group distribution of unscreened children, and so they present results as if the screened group had exactly the same cost distribution** before the cutoff date as the unscreened children. If there is regression towards the mean, in other words, its effect should be the same for both screened and unscreened respondents. The "total" columns show essentially the same result as our earlier analysis, however, indicating that regression towards the mean does not fully explain the differences in Table 10. Total costs increased by 28.0% for the unscreened group after the cutoff (see Table 12) while they fell by 9.7% for screened children. Hospital costs rose by 65.0% for the first group and fell by 28.2% for the second. As in our earlier analyses, office costs rose tremendously (83.0%) for screened children while emergency room charges fell by a small amount (2.3%). The results of Table 10, in short, are almost certainly not due to regression towards the mean.

## Treatment Costs for Specific Problems

As part of these analyses, HSRI staff also analyzed treatment costs before and after screening for a number of specific problems. These problems

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*Infants are excluded from Table 11 because earlier results showed cost patterns that were very different from those for older children. We could not control simultaneously for age and cost before cutoff because of cell size problems.

**Between the categories used here.

TABLE 11: AVERAGE MONTHLY MEDICAID COSTS PER CHILD(1), BY AVERAGE MONTHLY COST(2) BEFORE CUTOFF DATE (ADJUSTED FOR ELIGIBILITY)
(ADJUSTED FOR ELIGIBILITY

BEFORE CUTOFF

| | | Group 1 | Group 2 | Group 3 | Group 4 | Total(3) |
|---|---|---|---|---|---|---|
| NOT SCREENED | Office | $ 0.45 | $ 3.62 | $10.41 | $ 5.41 | $ 3.29 |
| | Hospital Inpatient | 0.00 | 0.19 | 9.51 | 204.20 | 9.04 |
| | Emergency Room | 0.17 | 1.72 | 4.45 | 7.54 | 1.65 |
| | Other | 0.43 | 5.40 | 19.49 | 34.39 | 6.40 |
| | TOTAL | $ 1.05 | $10.93 | $43.86 | $251.57 | $20.38 |
| SCREENED TOTAL | Office | $ 0.55 | $ 3.96 | $ 8.00 | $22.84 | $ 3.71 |
| | Hospital Inpatient | 0.00 | 0.02 | 9.09 | 237.16 | 10.12 |
| | Emergency Room | 0.20 | 2.22 | 5.72 | 12.29 | 2.21 |
| | Other | 0.64 | 4.95 | 15.11 | 22.97 | 5.22 |
| | TOTAL | $ 1.38 | $11.14 | $37.92 | $295.22 | $21.26 |

AFTER CUTOFF(4)

| | | Group 1 | Group 2 | Group 3 | Group 4 | Total |
|---|---|---|---|---|---|---|
| NOT SCREENED | Office | $ 1.98 | $ 4.36 | $ 5.39 | $ 5.08 | $ 3.45 |
| | Hospital Inpatient | 9.78 | 5.94 | 16.69 | 156.51 | 14.92 |
| | Emergency Room | 1.16 | 1.88 | 2.09 | 3.96 | 1.66 |
| | Other | 4.87 | 5.03 | 6.37 | 29.03 | 6.05 |
| | TOTAL | $17.80 | $17.22 | $30.54 | $194.59 | $26.08 |
| SCREENED TOTAL | Office | $ 4.79 | $ 7.82 | $ 9.35 | $11.44 | $ 6.79 |
| | Hospital Inpatient | 4.99 | 8.85 | 11.76 | 1.87 | 7.27 |
| | Emergency Room | 1.98 | 2.06 | 2.24 | 5.15 | 2.16 |
| | Other | 5.71 | 8.12 | 8.65 | 8.44 | 7.10 |
| | TOTAL | $17.46 | $26.85 | $32.00 | $26.92 | $23.32 |

(1) Infants are excluded from this table.

(2) Children are classified by their average monthly cost before screening. Groups are as follows: 1 = under $5.00; 2 = $5.00-$19.99; 3 = $20.00-$99.99; 4 = over $100.00.

(3) Totals are standardized on the group distribution of unscreened children.

(4) Treatment costs on the day of screen are excluded.

Table 12: Percentage Change in Average Monthly Costs, Standardized for Cost Before Screening

| | |
|---|---|
| Office | |
| - Unscreened | 4.9% |
| - Screened | 83.0 |
| Hospital Inpatient | |
| - Unscreened | 65.0 |
| - Screened | - 28.2 |
| Emergency Room | |
| - Unscreened | 0.6 |
| - Screened | -2.3 |
| Other | |
| - Unscreened | -5.5 |
| - Screened | 36.0 |
| Total | |
| - Unscreened | 28.0 |
| - Screened | -9.7 |

are classified in Table J-10 by whether they were probably known beforehand, probably discovered at screening, or possibly discovered at screen (see Chapter 16). These costs are total costs rather then by month, and they are primarily based on problem reporting from project screening sheets. Overall, close to 50% of all problems reported to the project showed no treatment costs on the Medicaid profile. This does not mean that problems went untreated, however, because physicians were only required to list a single ICDA when billing for multiple problems. The figures shown are thus minimal estimates since other treatment may not have been specifically identified.

The problem with interpretation of these data, of course, is that it is very difficult to know which problems were actually found at screening. A great many, if not all, would have had to be treated anyway, and if, in fact, EPSDT facilitated early discovery, it may well have saved the state money.

## Summary

### Cost per Child

The average cost per month of eligibility for screened children was $28.51* and rose to $29.52 after the first recorded screen. For unscreened children, these costs were $26.00 before the arbitrary cutoff date and $28.55 afterwards. Costs for screened children rose by 3.5% while costs for those without screens rose by 9.8%.

Analyses by cost category show that EPSDT clients greatly increased their office charges while decreasing hospitalization, emergency room utilization and other costs.

### Treatment Cost per Child and per Problem

These could not be estimated accurately for Washington because the MMIS required identification of only one condition per reimbursement request. About half of the treatments reported to the project could not be identified at all on Medicaid profiles.

### Treatment Cost by Type of Problem

Estimates were prepared for this, as presented in the text, but they were weakened by the same problem described above.

### Health Care Utilization Patterns

EPSDT clients used significantly more Medicaid services per month than did those without screens, especially for office and emergency room utilization.

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*This is a standardized total. The actual total in Washington would depend on the age distribution of screened children.

As further discussed in Chapter 16, their greater number of office visits probably helped recruit them into the EPSDT program.

Marked shifts in utilization appeared after screening, as described above. The drop in emergency room utilization was particularly notable.

# SECTION FIVE

# OTHER MAJOR FINDINGS

# CHAPTER 14

## PROVIDER AND CLIENT CHARACTERISTICS

During the twenty-two months of operation of this project, a total of 28 physicians and clinics in Pierce County performed and reported EPSDT screens on project data sheets. Screeners fell into three broad types: private physicians (including one osteopath), publicly funded community clinics, and the Tacoma-Pierce County Health Department (TPCHD). Screens were actually performed in approximately 35 to 40 different locations, as described below.

A total of 23 private physicians participated, and all but five of these were pediatricians. (The county medical society lists 25 pediatricians in Pierce County, and seventeen of these participated at one time or another.) Since several of the physicians shared common offices, the number of physician locations totalled seventeen. Most were in or near the city of Tacoma; although Pierce County includes large rural areas, the target populations and medical services were largely concentrated in urban areas.

Physician participation in this project was entirely voluntary and varied over time. (See also the section below on non-project screens.) Two physicians moved into the county and joined the project early in 1978, and a group practice of three physicians dropped out in May, 1978 when one of their number moved to King County. One provider effectively left the project in August, 1978 because of difficulties with his office staff, while another greatly increased his reporting rate when he realized that his office staff had been neglecting the forms. The level of physician participation depended greatly on the degree of effort the project put into maintaining it; when it became apparent that sufficient screens were being reported, less maintenance effort appeared to be required.

In this report, we have separately identified two groups of private physicians, one labeled "high volume" providers and the other "low volume." These categories were defined early in the project on the basis of expected number of screens; and with one exception, all high volume physicians reported more screens than low volume providers. As we shall see in subsequent chapters, the screening results of these two groups proved to be quite different.

Three community clinics participated in the project, but only one of these contributed a significant number of screens. These clinics were originally OEO community health centers; but by the time of the project, they were funded by a variety of sources, including revenue sharing and United Way. A physician was most often available in these clinics, and subsequent discussion in this report will show that, as far as EPSDT was concerned, the type of screening and treatment done was similar to that done in physicians' offices.

The third major provider was the Tacoma-Pierce County Health Department (TPCHD), which operated periodic adolescent and well-child clinics at seventeen locations throughout the county. These clinics, as their name implies, were primarily preventive in orientation; and little treatment was offered on site.

Parents who called in with sick children were told to see their private physician. Most of TPCHD's clients came from the near poor group - those who were too poor to pay for discretionary health care, but not eligible for Medicaid (nor, therefore, for EPSDT). The number of EPSDT screens performed generally averaged about two per clinic session. Nurses and supervised volunteers did much of the screening work at these clinics, but a physician was usually available.

Beginning in December, 1978, EPSDT was offered as a supplemental health service for eligible teenagers at a TPCHD family planning clinic. In the eight months between December and July, 51 screens were performed, or an average of six to seven per month. This experiment in inter-agency coordination is further described in Chapter 12 above.

## Single Site versus Multiple Site EPSDT

Screeners in Pierce County may also be distinguished by whether they offered one-step or two-step EPSDT. Screens performed by physicians are generally considered one-step screens because physicians are able to treat most problems without referral elsewhere; nurses and volunteers who do most two-step screens must refer problems to a new provider for diagnosis and treatment. Most (91.4%) of the screens in the Pierce County Project were done by a physician, and only TPCHD fit clearly into the two-step model.

There is another probable difference between one-step and two-step EPSDT that needs to be considered in statistical comparisons. Two-step screeners offer a primarily preventive health service, since children with known problems are encouraged to go directly to a doctor, (assuming they have one) rather than to a well-child clinic. Physicians see both well children and those with known health problems, and it is likely that a higher proportion of their EPSDT clients are either currently or recently sick. Physicians in this project, as we shall see in Chapter 16, were generally willing to screen during sick visits, and only a few children were scheduled for separate EPSDT visits. Physicians who screen during sick visits will naturally have high problem "finding" rates simply because of the timing of the screen. The chart below summarizes some of these differences:

| | One-Step | Two-Step |
|---|---|---|
| Type of Screener: | Usually a Physician | Usually Nurses & Para-Professionals |
| Location of Treatment: | Usually at Screening Site | Usually Referred Elsewhere |
| Motivation for Screen: | Usually in Conjunction with Sick Visit | Usually Preventive |

## Number of Screens

During the 22 months in which screening data were collected, a total of 5,633 screens were reported to the demonstration project. Nearly one-half of these screens (42.7%) were reported by four high volume physicians, and 19.8% of the overall total were reported by Doctor A. (See appendix for Table A-11). Other ("low volume") physicians reported 37.6% of the screens, so that all private physicians together performed 80.3% of the project's screens. Community clinics performed another 10.1%, and TPCHD did 8.8%. The results of this project are clearly most relevant for a program dominated by private physicians.

The third column in Table A-11 shows the percent of screens in each provider group that were performed by each screener. Nearly one-half (46.3%) of the screens in the high provider group were done by Doctor A, while 85.4% of those by community clinics were done by CMCS. The results for these two groups are obviously dominated by Doctor A and CMCS, respectively.

Table A-12 shows that the number of project screens per month fell rather steadily after the first few months, although monthly fluctuations tended to be considerable. The first quarter's results averaged 371 per month, while the final quarter's averaged 172. A major part of the decline was due to the falloff in the number reported by high volume providers (from 188 per month in the first quarter to 52 in the final one). During the first quarter, in fact, 50.7% of screens were reported by the high volume group compared to 30.2% in the final quarter. By age group, the biggest falloff was for infants; their share of total screens fell from 38.8% in the first quarter to 33.1% in the last. Some of the reasons for this decline are discussed under "non-project screens" in the following paragraphs.

## Client Characteristics

Table A-13 shows that a high proportion of project clients were infants or of preschool ages. Altogether, 37.1% of screens were done on infants, and 27.9% of all clients were in this age group at the time of their first screen. TPCHD and the community clinics tended to have somewhat older clients than private physicians, but even in these public facilities the majority of clients were under seven. Six point three percent of all screens were done on teenagers.

Table A-14 shows that 66.7% of project screens were performed on whites and 23.5% on blacks. Thirteen percent of community clinic clients were of Asian origin, but other providers saw very few Asians.

## Penetration Rates

As of late January, 1979, Department of Social and Health Services (DSHS) reported that 17,497 children under the age of 21 were eligible for EPSDT in Pierce County. This figure represented the number currently eligible as of that date, but if we assume an annual turnover rate of about 21%, it would appear that about 1.21 x 17,497, or 21,171 were eligible at some time during 1978. The project recorded one or more screens for 2,571 individual children during 1978 for an estimated project penetration rate of 12.1%.

Table A-15 shows the number of those eligible and the number screened in the project during 1978 by age group and geographic area. By age group, by far the highest penetration rate is shown for one and two year olds, with a steady falloff from there to age 20. By zip code, the highest penetration rate is shown for the area served by the Hilltop Community Service Office, number 49; this CSO served a large part of central Tacoma but also included such outlying areas as Gig Harbor and Fox Island. The other central Tacoma area (CSO number 27) also showed a relatively high penetration rate. By contrast, the eastern Pierce County area served by Puyallup CSO number 51 showed a penetration rate that is less than half as high.

## Non-Project Screens

To be reimbursed for an EPSDT screen, a provider needed only report it to the Medicaid billing agency, and so it was not surprising that a high proportion of screens were not recorded in the project's files. During the period between June 1, 1977, and March 31, 1979, 24.4% of the screens occurring in Pierce County were reported to the project. During calendar year 1978, screens billed to Medicaid in Pierce County totalled 11,847 or 4.25 times the number reported to the project. If these are added into the penetration rate calculated above, this rate becomes 49.8%. The proportion of county screens reported to the project declined in the final quarters. (See Table A-16.)

In order to evaluate rescreen ratios (see Chapter 4), project staff had to learn about and take account of unreported rescreens on project clients. Medicaid profiles were obtained, as described in Chapter 15, and dummy non-project rescreens were entered into HSRI's computerized data system via special rosters. Table A-17 shows the distribution of project and non-project rescreens by various characteristics.

The overall results show that 48% of the rescreens on children first screened in the project were not reported on project data forms. The great majority of these (1261 of 1497, or 84.2%) were performed by physicians who were in the project at one time or another, and several screeners (Doctors D and H) showed particularly high numbers of non-project screens. During the first six months, about 28.6% were unreported, but thereafter the proportion was about 50% or slightly less.

The reasons for non-reporting were almost entirely outside the project's control. During the developmental phase of the project (January to May, 1977), staff members attempted to recruit every physician with a significant number of EPSDT screens; all but a few agreed to join the project. Participation in the project's data system was entirely voluntary, and over time a gradually decreasing proportion of Pierce County screens were reported. This occurred in spite of a special three dollar fee paid to screeners for each screen reported. Some screeners fell behind in their paperwork, and one or two others said that they had become disillusioned with the value of case monitoring. One major screener refused to complete the forms himself, although he did allow the project to send in a nurse to do it for him. The project contacted screeners periodically to remotivate them but eventually decided that it had enough screens for a representative sample; it felt that a stable level of participation could have been maintained had it chosen to work for it. The project's experience suggests to

HSRI, however, that a significant number of private physicians will not cooperate fully with a voluntary data system.

## Summary

The results of this project are based on approximately 5,600 EPSDT screens reported to the project over a 22 month period. More than four-fifths (80.3%) of these screens were performed in the offices of private physicians, and altogether 91.4% of project screens involved a physician. The majority (66.7%) of clients were white and lived within the cities of Tacoma and Puyallup.

The EPSDT demonstration project maintained its own reporting system, so that screeners who wished to be reimbursed had to report both to the project and to the Medicaid billing system. The project paid screeners three dollars for each screen reported on project data sheets, but the proportion of county screens reported to it fell rather steadily from 29.1% to 18.8%. One explanation for this is that physicians claimed to see little benefit from the project for their own personal practices; another is that several screeners had office problems that prevented them from completing non-essential paperwork. Voluntary reporting of screens is not likely to work; reporting must be linked to reimbursement if it is to be complete.

# CHAPTER 15

# DATA MANAGEMENT FOR CASE MONITORING AND EVALUATION

The Pierce County EPSDT project developed and tested both a screening data sheet and a data sheet for conditions found at screening. Local pediatricians actively helped the TPCHD project to develop and pre-test these forms, and the Health Services Research Institute contributed ideas gained from experience elsewhere. The forms had to meet both special research needs and the requirements of routine case management, and some data elements were not expected to be needed for a statewide activity. This chapter discusses the content of these forms and the procedures for filling them out.

## A. Project Data Forms

### Consent Form

The project's data collection system began in the screener's office. When the child appeared for his or her first screen, the physician's office staff briefly described the research project to the parent or guardian and requested the latter's consent to enroll the child. The parent was told that the child would be given complete medical services regardless of whether or not she or he participated. The parent signed the attached form (Appendix B-1), indicating whether consent was given or refused, and the screener's office eventually forwarded this to the project. The proportion who refused consent appeared to depend partly on the attitude and manner of the screener's office staff.

### Screening Form

The screening form shown as Appendix B-2 was completed by the screener for each screen, whether or not all recommended tests were done. It came in two essentially identical versions, one for the control group and the other for the experimental; these forms differed only in color. The manner in which this form was completed varied from provider to provider, but we think that in most cases the physician recorded abnormal findings either on a patient chart or on an internal form that listed most of the common pediatric conditions and procedures. The nurse or receptionist abstracted these later, perhaps in some cases after consulting with the screener. The project's instructions to screeners are exhibited in Appendix B-5.

Forms 1 and 2 had two sections in which the provider could note problems found. Section F classified findings into 29 categories. These categories were not mutually exclusive, however, so a single symptom may have been reported two or even three times. Conditions classified under Step 1 ("Ht./Wt./Age"), for example, were very often reported under Step 29 ("Nutritional") as well. Similar overlaps occurred in Steps 21 through 25, and in steps referring to ear and eye conditions. Section F allowed us to analyze the conditions which screeners found to be abnormal, but it did not provide a problem count. Section G did provide an unduplicated problem count, however, and it also required labelling of problems by ICDA. Section G provided space for up to five separate problems, and this proved to be sufficient in all but a very few cases.

A few of the data elements shown on the screening sheet were not available for computer analysis since they were intended only for case management. Family name, phone number, and child's address did not appear on the Institute's copy, although the zip code did. Section C., "Vital Signs and Measurements," was also blacked out on the Institute's copy. Section H, "Comments," and the part of Section I dealing with the reasons for incomplete screening were also not entered on the computer although they were available for hand analysis.

## Medical Referral Form

Screeners normally initiated the medical referral form, Form 3 (see Appendix B-3), for any medical problem, whether or not it was fully treated at screen. Since Form 3 allowed for only three problems, a second sheet (with a different serial number) had to be used for about three percent of screens. The project made no additional payments beyond the three dollars paid for the screening sheet.

Form 3 was divided into into four sections, and for some problems, these may have been filled out at three distinct times. The top section identified the child and established linkage with a screening sheet. The screener section identified each problem by ICDA, indicated any previous knowledge about the condition, and noted whether the problem was being treated and/or referred. Referrals could be made to self (for a second visit), to other providers participating in the project, or to persons or institutions with whom the project had not established routine relationships. The top two sections essentially repeated information from the screening sheet, since only the subsection on previous knowledge was new. (This subsection, moreover, was rarely filled out.)

The problem classification section was filled out at various times depending on the type of problem. If the screener treated the problem during the screen (about three-fourths of all problems), this section was filled out then. If the problem was later found to be a false positive, project staff adjusted the middle section accordingly. If the problem was first treated after the screen, the problem classification section was filled out at some appropriate time later on; information in this section could then refer either to the first treatment visit, or to a later visit. If the screener referred the problem to another provider without treating it, the project sent a form letter (Appendix B-4) to the new provider asking for information; this was subsequently copied onto Form 3. (No fee was paid for this form.) The problem classification section was primarily intended for case management.

The bottom section of Form 3 was filled out after the case monitor had completed all of her work on a particular problem and indicated the problem status as of that time. (See the section on case monitoring for additional information.) This was then sent to the Institute for case closure.

## B. Processing of Forms

### Project Processing

The project van visited most providers at least once every two weeks to pick up accumulated forms and to deliver blanks. At least three or four staff members (not counting the case monitor) were then involved in checking Medicaid pic*codes and names and the internal consistency of the data. If the child was new to the project, staff had to compare his pic code with a printout of the state eligibility list (available in the project office) to confirm that the provider copied it correctly. (The project did not, however, attempt to confirm current eligibility.) If the child was previously screened, staff had to compare and "synchronize" names and pic codes. Providers frequently failed to complete all required data on the forms, and the project had to do this also (usually without needing to call the provider). One provider refused to fill out the medical referral forms, so the project did this for him. We estimated very roughly that the project spent an average of ten minutes completing and checking each form before sending it to HSRI for data processing.

### Health Services Research Institute

Institute staff did some manual checking of forms before entering them into the data system, but most checking was done by specially developed data entry programs. HSRI was set up for remote entry to one of two IBM 370/3031 computers located at San Antonio College (SAC). Each computer had two million bytes of main memory running under VM/370. HSRI was linked to SAC via a leased phone line which supported a 3775RJE (remote job entry) station and four 3277 display terminals.

Project data were entered and maintained using the IBM CICS system, which is widely used in many business computer applications for on-line data entry and retrieval. Using one of the 3277 display terminals, an operator entered data directly from the project forms, thereby eliminating all keypunching and verifying of cards. Approximately 700 forms per day could be entered by one operator.

The data entry programs established "legal" ranges of codes for each variable and also compared certain inputs with data already on file for the child or for the screen. The system, for example, required that data be entered in a certain sequence, so that it would reject a medical referral form if it did not find a screening sheet already on file with the identical name, pic code and screening data. It would also reject a problem sheet for an ICDA code not previously listed on the screening sheet. Certain items had to be filled in for every form, and the computer checked for these as well. This system greatly reduced the possibility of coding or terminal entry error, but it also required the greatest possible degree of planning before the system was set up since "minor" changes later on could affect a much wider interlocking structure.

The computer rejected only perhaps three percent of the forms that we attempted to enter, largely because the project was so careful in checking the

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*Project identification code

data before sending them to us. Data correction was a major source of confusion for some time, partly because of a backlog in data entry and a resulting pyramiding of errors, but a system was eventually established for speedy reporting and correction. After each batch of data was entered, HSRI sent the project a list of rejected forms with an indication of the reason for rejection. (Previous efforts to phone about errors or to return the rejected forms were found to be unworkable because of the large numbers involved.) Project staff made the necessary modifications and returned the rejects list to HSRI to complete data entry.

Data errors could also be discovered by the project, usually at the time a child was rescreened. (The frequent periodicity of screens, especially for infants, heightened the probability of name or pic code changes.) The project reported these to HSRI via special correction sheets, and we then made the necessary changes both on the original form and on the computer record. We estimated that correction of data already on line required an average of five to eight minutes of Institute time per form. (See Appendix B-6 for the data correction procedure.)

## C. Medicaid Management Information System

There were two independent EPSDT-related data systems operating in Pierce County during the course of this project, and each had its strengths and weaknesses. The project's system supplied timely and detailed data on the findings of about 25% of the screens in the county, and it was an essential tool for case management. It did not supply cost information, nor treatment data for the control and LCM groups, however, and the project needed to know at least the dates of screens on project children when they were only reported to Medicaid. Medicaid profiles had to be obtained on the majority of project participants at one time or another during the course of the project, and they also had to be obtained for a sample of unscreened children as part of the Medicaid cost study. (See Chapter 13.)

The first major use of the profiles was early in 1978, when the project began its research follow-up on problems reported during the control phase. Profiles were especially useful when the parents could not be located because they were then the only way that the project had to determine whether treatment had been obtained. Profiles were also consulted to verify treatment dates and to see whether treatment had been initiated within sixty days after screening. The same procedure was used for research follow-up on limited case monitoring.

MMIS profiles were also useful in monitoring annual rescreens, and they were essential in evaluating rescreen ratios for children of all ages. In scheduling annual rescreens, only children who had not been screened for twelve months were to be contacted; and since some may have been rescreened outside the project, it was desirable to have as complete a record as possible. (CHWs always phrased their rescreen reminders carefully, however, because they could never be sure when the last screen had occurred and when the screener planned to do another one.) Rescreens that occurred outside the project's data system also needed to be counted for evaluation purposes; the project reported these to HSRI on special rosters, and they were entered into our system with flags to indicate their source. (All results discussed in this report - other than those for rescreen ratios - are based on project screens only.)

The Medicaid billing system had several major flaws which made it unusable for routine case management and evaluation. Screeners generally provided only the minimal amount of detail needed to obtain reimbursement, and detailed screen findings were not required. If multiple problems were found or treated, only one of them was reported. Since some conditions were not reimbursable, screeners reported the ICDA codes that they could easily recall and that they knew would be paid for. Treatment charges could be identified as EPSDT-related, but they almost never were, and screeners might use one ICDA code for one visit and a second one for the same problem at a later visit. The Medicaid cost study, in particular, was seriously inhibited by the difficulty of linking treatment charges to conditions found at screen.

Timeliness was, and will probably always be, a major constraint in using the MMIS for case management. While the average delay between an event and its appearance on a Medicaid profile was probably only 30 to 45 days, many office visits were not reported for several months or more due to disputed billings or other factors. Profiles could be used for scheduling annual rescreens, but they could not be used for infants because their rescreens generally occurred within two months of each other.

In order to obtain Medicaid profiles, project staff had to drive 35 miles to the state DSHS office in Olympia and keypunch pic codes and other identifying information at a computer terminal. This was frequently possible for only one or two hours at a time because the terminals were in demand for other purposes. They then had to return five days later when profiles were printed. A statewide system obviously could not work on this basis.

## D. Data Systems for Case Management

HSRI provided the project with a number of monthly rosters, but the project had to supplement these with at least one manual tickler system of its own. These listings included:

- control group problems needing research follow-up (listed six months after screening);
- problems given limited case monitoring and needing research follow-up (issued four months after screening);
- a masterfile listing of all screens performed to date;
- a listing of problems still open 180 days after screening; and
- a listing of children needing annual rescreens (issued twelve months after the most recent screen).

A similar roster of infants needing rescreening was produced for some time, but the project eventually replaced it with their own system. Other special rosters were produced from time to time.

## CHAPTER 16

## PROBLEMS FOUND AT SCREENING

When EPSDT was first proposed as a national program in the late 1960's, its stated objectives were to bring millions of poor children into the health care system and, in particular, to achieve primary or secondary prevention of potentially crippling childhood mental and physical conditions. While recent evidence indicates that poor people now seek and obtain medical care about as often as wealthier people do, there are still indications that health status is lower among the poor*. Poor children with learning disabilities, such as hearing loss or poor visual acuity, may be more handicapped than wealthier children with similar problems just because they have fewer resources to pay for remedial help. A crucial criterion of EPSDT success, therefore, is whether the program, as operating in a particular area, is actually bringing in new children and/or discovering potentially serious conditions at a stage when they can be easily and completely cured.

The Pierce County demonstration project was not intended either to increase the number of eligible children screened or to influence the types of screens that were performed. The discussion that follows does not reflect at all on the quality of the project's work, but it does describe the environment in which it operated. The results of case monitoring might be very different in some other context.

### A. Problem-Finding Rates

Throughout the course of this project, problem finding rates have been much higher than they would have been in a purely preventive health activity. Project screeners reported treatable or referrable problems from 63.4% of all screens, or an average of 0.97 problems per screen. These figures exclude immunizations and if these are added in, they become 83.9% and 1.48 respectively. EPSDT was not a well-child activity in Pierce County; in spite of a fairly high subjective health rating (an average of 7.59 on a scale of 9), most of these children were sick at the time that they were screened.

Chart 19 and Table A-18 show remarkable differences by individual providers in the mean number of problems per screen. Doctor A, the largest single provider in this project, reported problems from all but ten of his 1,114 screens, and had an overall average of 1.56 problems per screen. Doctor H, on the other hand, averaged 0.45, while others had averages at all levels in between.

There is no obvious single explanation for the large differences by provider shown in Chart 19, but it seems unlikely that they were due to

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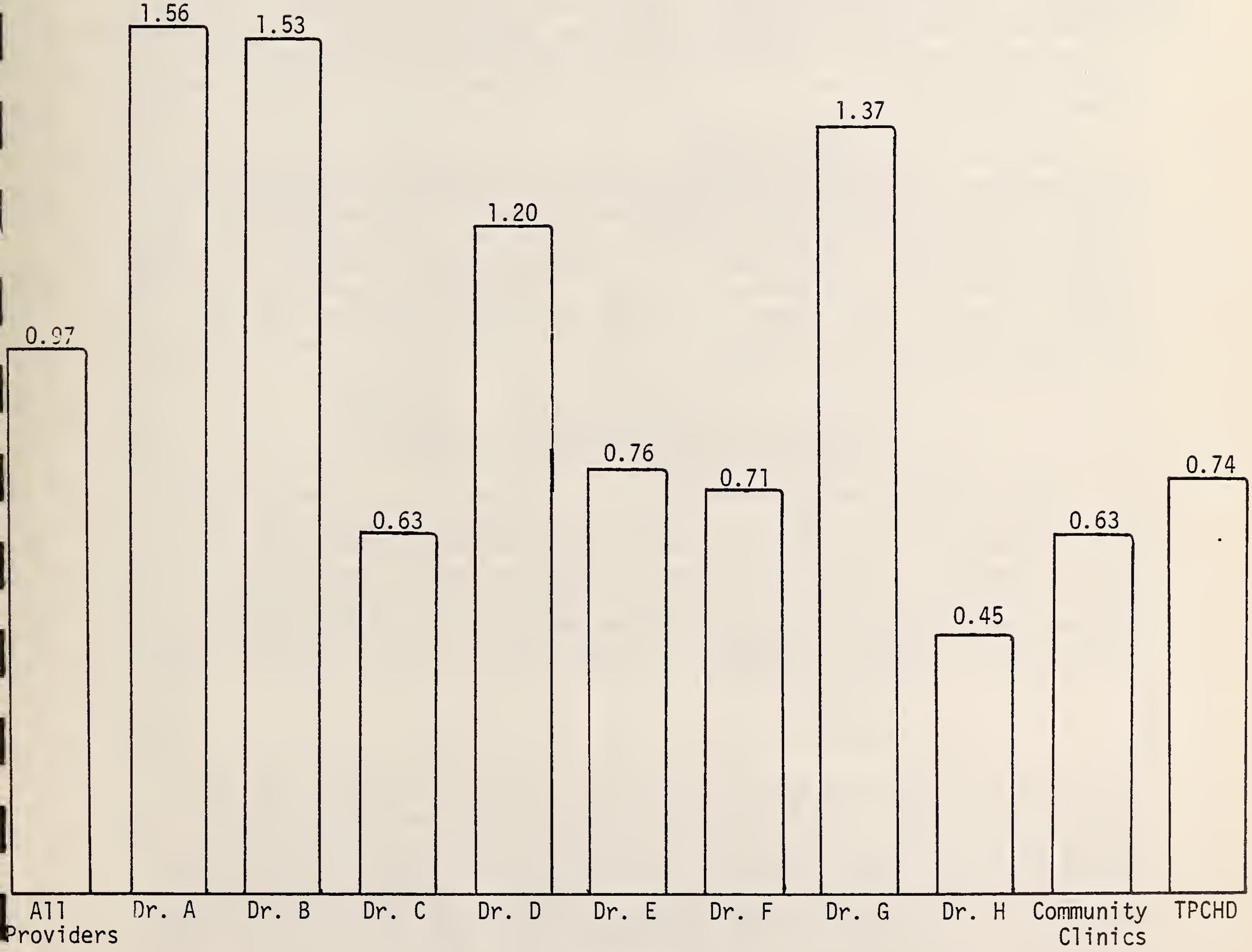
*U.S. Department of Health, Education and Welfare. 1978. Health United States, 1978.

Chart 19: Mean Number of Problems Per Screen*, by Provider



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*Excluding immunization deficiencies.

differences in client characteristics. The mean healthiness ratings reported by the different provider groups ranged very narrowly from 7.36 to 7.63, while the proportion of screens with problems ranged from 46.1% to 81.8%. Results by individual provider suggest that there is actually a fairly strong direct correlation between the proportion with problems and the mean healthiness rating; that is, in general, physicians reporting the most problems also reported that their children were the healthiest. (This, of course, is just the opposite of what one might expect.) Although Chapter 14 did show differences in clients' age and ethnicity by provider type, our first report showed that reporting differences were not due to age distribution. In brief, it does not appear that reporting differences were due to underlying differences in the health status of clients at the time that they were screened. They appear, rather, to be due to differential thoroughness or to different definitions of 'problem'.

Problem-finding rates differed rather little by characteristics other than provider. Looking just at the proportion of screens with problems excluding immunizations (Table A-18),we see very small differences between the control and experimental groups (61.4% versus 64.1%), by age (59.5% for infants versus 68.3% for pre-teens) or by screening sequence (63.8% for initial screens versus 62.5% for subsequent ones). Experimental screens did tend to report a higher average number of problems per screen (0.99) as compared to control screens (0.92), and the average also increased with age, from 0.87 for infants to 1.09 for pre-teens.

## B. Finding Rates for Specific Conditions

A more detailed analysis of these high problem-finding rates indicates that they were entirely due to the very high incidence of upper respiratory infections, skin conditions, and similar obvious problems, and that such "preventive" conditions as dental, vision and hearing deficiencies were infrequently reported. There was, moreover, a very large difference between the findings of private physicians and the findings of TPCHD well-child clinics. These differences are summarized in Tables A-19 through A-21* and in Chart 20.

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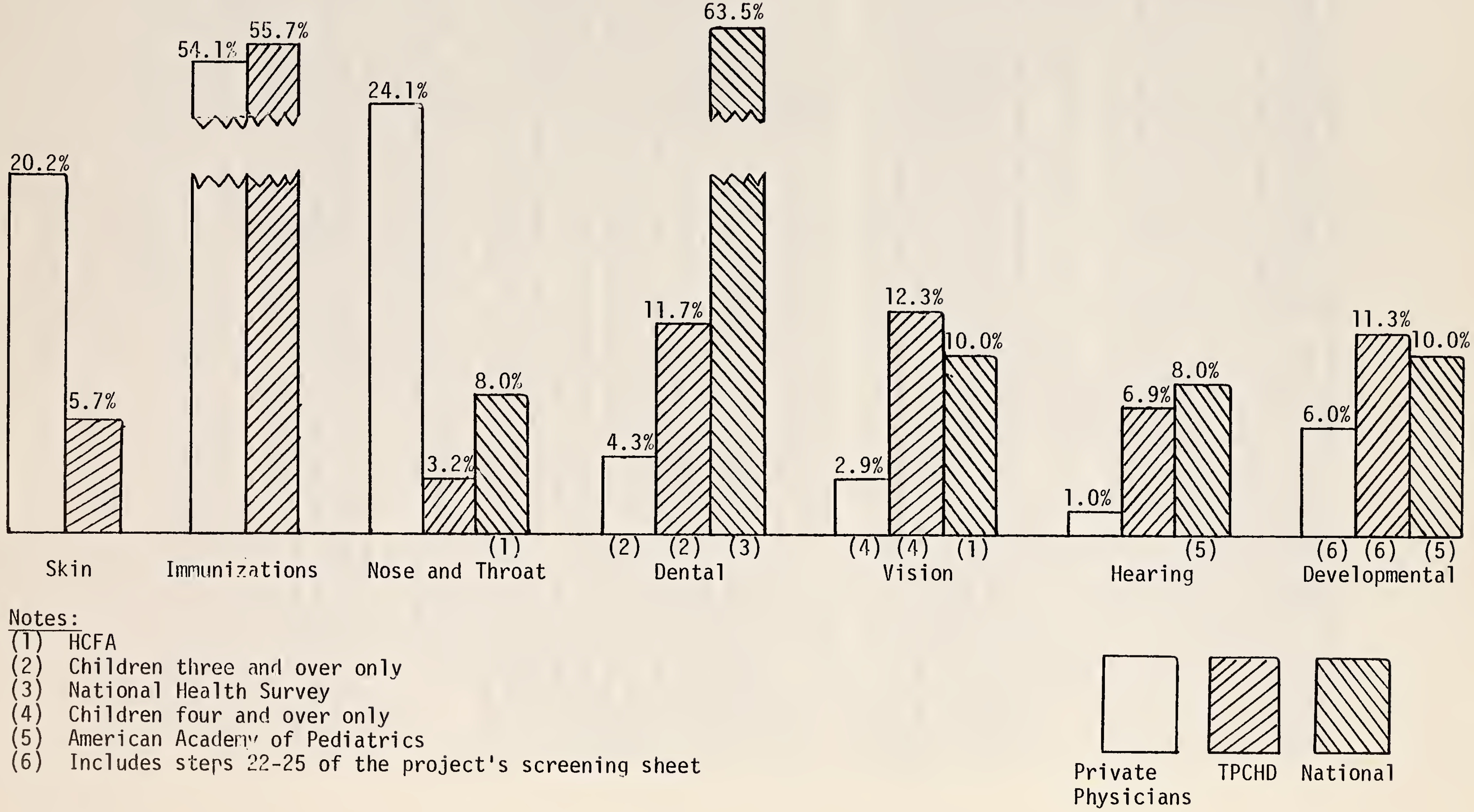
*Table A-19 shows the percent of screens reporting problems by the step numbers of Section F from the project screening form (see Appendix B-2 for a copy of this form). This table is useful because it ties in directly with the project screening sheet, but it may count a single condition under more than one step.Table A-20 regroups problems by their ICDA codes, as described in Appendix E-1. This method does provide an unduplicated problem count, but it is less precise because of the way it groups conditions. Both tables will be referenced in the following discussion.

Chart 20: Proportion of Screens With Problems of Various Types, Comparing Private Physicians, TPCHD and National Data



Notes:
(1) HCFA
(2) Children three and over only
(3) National Health Survey
(4) Children four and over only
(5) American Academy of Pediatrics
(6) Includes steps 22-25 of the project's screening sheet

Differences of 300 to 400% between provider groups are common in Table A-20 and differences between individual physicians are even greater. The high volume group, for example, reported respiratory problems from 43.8% of screens compared to 2.7% of TPCHD screens. Doctor A reported such problems from 64.7% of his screens-a large proportion of these were identified as "cigarette pharyngitis"-while Doctor H reported them from 1.6%. Dental problem rates varied from 0.0% for Doctor H and 0.4% for Doctor B to 12.6% for TPCHD. Once again, we doubt that these differences were due to underlying patient characteristics; rather we strongly suspect that individual providers did their screens differently.

Chart 20 compares findings from project physicians and TPCHD with those from national reports. The differences are striking. Private physicians reported skin conditions from 20.2% of screens and nose and throat problems from 24.1%, compared to 5.7% and 3.2% respectively from TPCHD. Physicians reported vision problems, however, from only 2.9% of screens, compared to 12.3% from TPCHD and a national standard of 10.0%. Hearing deficiency was reported from 1.0%, 6.9% and 8.0% of screens respectively. Physician screeners also underreported dental and developmental problems, in comparison both with TPCHD and with national reports.

In general, high volume providers showed the greatest proportion of screens with presumably acute conditions such as Hct/Hb, ears, nose and throat, genitourinary and skin problems while TPCHD showed the highest proportions for social-emotional, dental, hearing and vision deficiencies. The former conditions are ones that EPSDT was not intended to discover because they are mostly self-limiting, while the latter were intended, and it is difficult to escape the conclusion that TPCHD did the most effective screening in this project. (This, of course, is not the only criterion of success, since we saw in Chapter 6 that somewhat fewer of TPCHD's problems got treated; but it is an important indicator.) TPCHD's screens were done by nurses and others, with each major test being done by a separate individual who specialized in that particular test. TPCHD also refused appointments for children who were obviously sick because they were intended specifically for well-child exams. TPCHD was the only provider group to show a lower problem finding rate after the initial screen.

By far the grossest differences shown on Chart 20 are for dental finding rates. (These have already been age adjusted by removal of children under three.) Physician screeners reported dental problems from just 4.3% of their screens compared to an expected level of 63.5%. The project was very concerned about these findings and hired a part-time dental hygienist in August 1978 to do independent dental screening. The hygienist reported dental problems from 56.0% of the fifty EPSDT screens that she participated in, confirming that the national figure was probably representative of Pierce County as well. Routine dental exams do not appear to have been done (or done properly) in this project. (See also Chapter 12 and Appendix F for discussions of the dental sub-study.)

One indicator of the types of tests performed at screening is available from the Medicaid billing profiles. The State Office of Medical Assistance reimbursed screeners for specific EPSDT-related tests as well as for the screen itself. In a review of 500 screens, HSRI found supplementary billings for the following:

| | |
|---|---|
| -hematocrit | 40.8% of all screens |
| -complete urine or urinalysis | 31.0% |
| -hemoglobin | 6.8% |
| -complete blood count | 1.2% |
| -audiometer | 0.6% |
| -EPSDT miscellaneous lab | 1.6% |

The small number of screens with audiometer tests was especially surprising because screeners could charge nearly as much for this test ($15.00) as they could for the screen itself ($21.54); several major screeners, including CMCS and TPCHD, owned audiometers. Less expensive tests may, of course, have been omitted because of oversight or ignorance of the availability of reimbursement. The data do suggest, nevertheless, that some of these tests were widely omitted from the screening.

## C. "True" Problem Finding Rates

The most likely explanation for these skewed problem-finding rates is that many, if not most, screens occurred in conjunction with acute episodic sick visits. The Pierce County project did not include an outreach (case finding) component, and the state's routine program provided only periodic written notices. In Dallas, such notices were found to have little effect on screening penetration rates*. Self (or parental) motivation for visiting a physician is likely to be strongest when a child is actually sick, because concern about health is likely to be greatest then. Physicians and the Public Health Department were effectively the only case finders in Pierce County: physicians encouraged new mothers to bring their infants in for well-child visits, and they took advantage of sick visits as an occasion for EPSDT. There were only two major exceptions: project case monitors encouraged rescreens, and school authorities required entrance and athletic physicals. The data forms do not, unfortunately, tell us the motivation for screening, but we suspect that sick visits played a prominent role.

The tendency toward screening in conjunction with sick visits was accentuated by the use of physicians as screeners. It would not have occurred in a two step mode where treatment is usually separate from screening because it was almost certainly the treatment that most parents were seeking. The difference between TPCHD findings and those of the private physicians is of particular interest in this regard; TPCHD actively encouraged sick children to see a physician rather than to come to a well-child clinic.

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*Health Services Research Institute, 1978. EPSDT in an Urban Setting-Dallas, Texas: Final Evaluation Report.

As an adjunct to the medicaid cost study, HSRI analyzed the medicaid profiles of 474 unscreened children to see how many had visited physicians during the thirteen months between October 1, 1976, and October 31, 1977. We found that 60.8% of these unscreened children had not seen a physician, and that an additional 22.6% had seen one only once or twice. National data show that most pre-school children see a physician at least once a year, and so the sick visit clearly has great potential as a case finding device, at least below age six.

The American Academy of Pediatrics recommends that screening should be separated from sick visits, both because several important tests are unreliable during illness and because treatment of an immediate condition leaves inadequate time for careful screening. Most physicians that we interviewed disagreed with this, however, and several said that their patients would not voluntarily return for a purely preventive health check-up. Several of them, moreover, had extremely busy practices and could not have scheduled a separate appointment. Parents were probably aware that their child was being screened only when they signed the project's consent form, because EPSDT probably differed rather little from the physicians' routine practice.

Should the State of Washington adopt more active outreach, it is likely that far more apparently well children would be brought into the EPSDT system. The "mix" of problems requiring case monitoring would shift, and monitors might have to work harder simply because the majority of problems found would be less obvious to the parent. The conclusions of this report would not necessarily be invalid in such a situation but they would have to be carefully interpreted.

To sharpen our analysis, project staff with medical background classified all problems reported at screening by whether or not the parent was likely to have been aware of and concerned about them before an EPSDT screen*. Three categories were established:

1) conditions that probably motivated the office visit during which screening occurred;

2) conditions that were unlikely to have stimulated an office visit;

3) conditions that might or might not have stimulated a visit.

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*These classifications were based on ICDA codes, and they are detailed in Appendix I-2. Although the medical referral form included the following categories-completely new condition; previously known, under care; previously known, not under care-this section was generally filled out according to the screener's rather than the parent's prior awareness of a problem.

To simplify the discussion below, the three categories defined by the project will be described as "cause for exam", "found at screen", and "could be either", even though these labels greatly over-simplify the case.

Even though this classification scheme was necessarily somewhat arbitrary, it highlights very important differences by provider. Amongst 4,395 reported experimental problems, 43.3% were almost certainly known and of sufficient concern to the parent to have motivated the physician visit at which screening occurred (Table A-22). These problems, in other words, were not found at screening but actually caused the screen to occur. In a program with aggressive outreach, they might not be reported at all because far fewer screens would occur during sick visits. An additional 36.5% of problems might or might not have motivated the screen, and if we add half of these to the 43.3%, we may estimate that more than 60% of the reported problems in this project were the cause, rather than the result of screening. Only 20.2% of reported problems were unequivocally not the cause of screening.

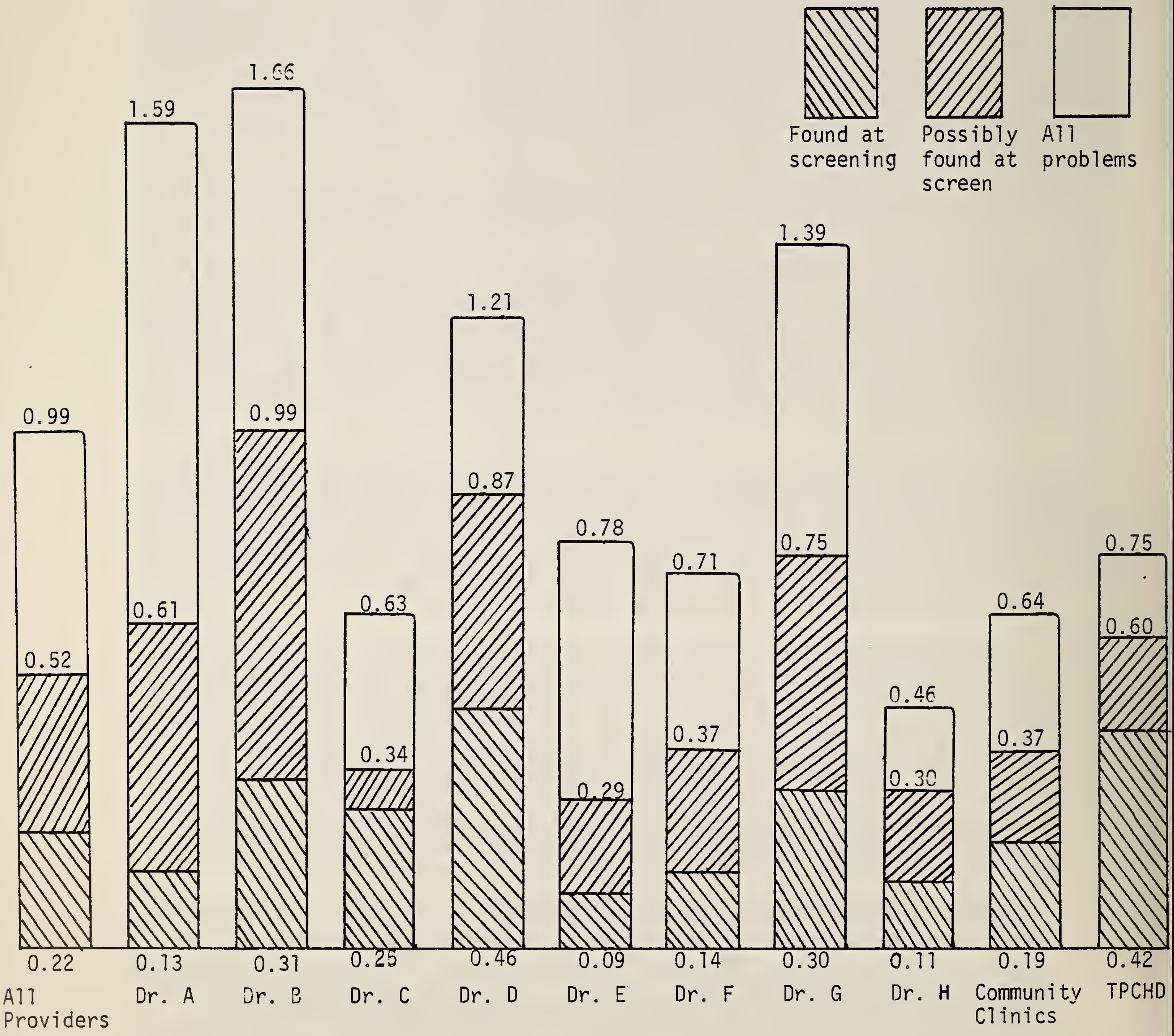
The proportion of problems that clearly did not motivate a sick visit before screening ranged from 16.6% for high volume providers to 46.5% for TPCHD. Well over half (59.8%) of Doctor A's problems were fairly certainly known beforehand, while only 7.7% were unknown. Doctor E also reported very few problems (9.1%) that were clearly not the cause of the screen. Other comparisons, such as by screen sequence or by age group, are obscured by the fluctuating proportion in the uncertain category.

Table A-23 and Chart 21 show the mean number of problems per experimental screen with and without inclusion of problems known beforehand. (All three columns exclude immunizations.) When all reported problems are included, they average 0.99 per screen; when those that definitely motivated screening are excluded, the mean becomes 0.52, and when all those that might have motivated screening are omitted, the rate falls to 0.22. The true problem finding rate probably lies somewhere between 0.22 and 0.52.

Exclusion of all problems except those that definitely did not motivate screening accentuates differences between the categories shown in Table A-23. High volume providers, and particularly Doctor A, are greatly affected by the exclusions; the finding rate for the group falls from 1.37 to 0.24, while for A, it falls from 1.59 to 0.13. The rate for TPCHD falls only from 0.75 to 0.42 however; and after all the exclusions, TPCHD has twice the problem finding rate of any other provider group. Refinement also greatly accentuates differences between initial and subsequent screens, suggesting (as does the project's hypothesis 2a) that repeat screening tends to reduce the proportion of children with undetected health conditions.

A comparison of Tables A-20 and A-24 shows what happens to problem-specific finding rates when conditions that clearly caused the office visit are excluded. Before exclusion, the most frequently found problems were respiratory (26.1%), nervous system and sense organs (15.5%), skin conditions (12.8%) and immunizations (9.5%); after the exclusion, skin conditions (9.9%) and

Chart 21: Problem Finding Rates By Provider, Using Alternative Definitions of Problem*



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*This table and chart, unlike Table A-18 and Chart 19, include only experimental screens, so the total problem finding rates differ slightly.

immunizations (9.5%) ranked first and second respectively, while nervous system (6.6%) and respiratory problems (6.3%) fell to third and fourth. The majority of infective diseases, mental disorders, nervous and respiratory system problems, and birth problems, were almost certainly known and of concern to the parent before they were reported by the screener.

## D. Conclusions

Findings reviewed in this chapter make it clear that sick visits were the major client recruitment device in the Pierce County project, but that screening during sick visits was probably not effective EPSDT. Total problem-finding rates were very high: 63.4% of screens reported treatable or referable conditions, and there was an average of 0.97 problems other than immunization deficiencies reported from each screen. The number of upper respiratory and skin conditions was particularly high. Since most poor children under six see a physician at least once a year*, the sick visit offers considerable national potential as a case finding device.

In spite of this high overall rate, however, the number of problems that were unequivocally found at screening was actually quite low. Approximately 80% of the reported problems either definitely or possibly motivated the physician visit at which the screen occurred, so that only 20% were definitely discovered as a result of EPSDT. The number of dental, vision, hearing and developmental problems was very low by national standards.

Screening in this project was performed both by private physicians and by well-child clinics of the Tacoma-Pierce County Health Department, although the overall statistics discussed above are dominated by the physicians. TPCHD's results were much closer to national standards, and the mean number of problems that were unequivocally found at screen was twice as high for their screens as it was for others. TPCHD did not screen during sick visits, and they appear to have been far more effective as a result.

Reliance on the private sector for EPSDT or for CHAP is clearly not a panacea, and some kind of input or performance standards appear to be essential.

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*National Center for Health Statistics, "Physician Visits, Volume and Interval since Last Visit, United States - 1975." Vital and Health Statistics, Series 10, Number 128.

## CHAPTER 17

## THE KINDS OF PROBLEMS THAT REQUIRE MONITORING

The amount of case monitoring that a particular EPSDT program has to give depends on two interacting factors - the types and seriousness of problems that are found at screening, and the extent to which patients would obtain necessary services without monitoring. Chapter 16 above showed that screeners reported a very large number of problems in Pierce County, but that most appeared to be self-limiting acute episodes rather than the preventable long term conditions that EPSDT was intended to discover. This chapter will show that many of the reported problems did not require monitoring at all because they were fully treated at screen, while another large portion required assistance for only one appointment after screening. The average cost and difficulty of monitoring each case would have been greater in a prevention oriented program, but the overall total cost might have been less.

### Proportion Initially or Completely Treated at Screen

A screener who found that a child had a problem had a number of treatment options to consider. In 2.0% of cases, treatment was not considered advisable or warranted and so the condition was merely recorded without further action. Problems needing treatment could be completely treated at the first visit, could be referred only, or could be both treated at first visit and referred. Referrals could be back to self or to some other physician, dentist, or clinic. Some "problems" reported at screening were later found to be false positives.

One of the policy questions regarding case monitoring is whether it should stop after initial treatment of a problem has been ensured or whether it should continue until all necessary treatment has been completed. Table A-25 shows that 68.9 to 78.6% of problems received at least initial treatment during the screen itself and that only 21.4% to 31.1% were completely deferred until a later visit. Well over half of all problem types except dental were treated during screening, and most of these proportions were over 75%. Among provider groups, TPCHD was the only one to treat less than 70% at screen; its proportion was 16.7% under extended monitoring and 15.4% in the control group. The ICDA status section shows that smaller proportions of problems possibly or definitely found at screen were treated immediately, but even here nearly two-thirds were treated at screen.

Table 13 shows that 42.0% of experimental problems required no monitoring at all because they were completely treated during the screen. This proportion was particularly high for teenagers (50.7%) and particularly low for clients of community clinics (27.5%) and TPCHD (12.5%). By problem category, the proportion resolved at screen exceeded 60% for infective diseases and parasites (62%), respiratory problems (63.6%), skin problems (60.2%), and accidents, poisoning and violence (61.8%). It was less than 20% for dental (8.6%) and birth problems (17.5%)*. Problems that defintely did not cause the physician visit at which the screen occurred were much less likely than other problems to be resolved at screen (25.1%)**.

## Referrals

### To whom referred

Table A-26 analyzes those problems that were not fully treated at the screen. Most problems requiring additional treatment were referred back to the original provider: in the control group, this proportion was 66.7%, while in the experimental, it was 77.7%. Those referred elsewhere went to a wide variety of providers. Most of the difference between the control and experimental groups is accounted for by the much lower proportions referred to dentists and group homes in the experimental group.

It is interesting to note that the proportion of problems referred to self declined steadily as the patient's age rose. For older children, a much higher proportion of problems were referred to ophthalmologists, group homes and specialist clinics.

High volume physicians referred 90.4% of their problems back to themselves and an additional 4.5% to specialist physicians. TPCHD referred all but 28.7% of its problems to some other provider, and particularly to medical doctors (22.6%), dentists (16.8%), and specialist clinics (11.8%). Community clinics, by contrast, referred 70.2% of their problems back to self.

### Treatment Processes

In preparation for its limited case monitoring study, the project also recoded all experimental problems on file to indicate the degree of case monitoring that had actually been required. (This was omitted for problems that were fully treated at screen because they did not need monitoring.)

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*Table 13 shows that no immunizations were completed at screen, but this was because medical referral forms were only filled out for children needing additional shots.

**Table A-25 in the Appendix is an amplified version of Table 13. This table shows that the proportion of problems fully treated at screen rose from 37.9% in the ECM group to 52.9% under LCM. Since the monitoring variable itself would not have affected this proportion, the change may be due to project coding. It is possible that many of the "referrals" reported on project data sheets were actually discretionary call backs and hence not truly indicative of the need for monitoring.

## Table 13: Proportion of Experimental Problems Resolved at Screen or Within One Visit Afterwards

| | At Screen | One Visit After | Total |
|---|---|---|---|
| Total | 42.0% | 24.7% | 66.7% |
| Age | | | |
| Under 1 | 40.4 | 26.7 | 67.1 |
| 1-6 | 40.2 | 24.4 | 64.6 |
| 7-13 | 45.5 | 24.6 | 70.1 |
| 14-20 | 50.7 | 17.6 | 68.3 |
| Provider | | | |
| High Volume | 47.4 | 24.7 | 72.1 |
| Low Volume | 42.9 | 23.6 | 66.5 |
| Community Clinic | 27.5 | 34.3 | 61.8 |
| TPCHD | 12.5 | 23.3 | 35.8 |
| ICDA | | | |
| Infective Diseases and Parasites | 62.0 | 24.1 | 86.1 |
| Nutritional Deficiencies Endocrine and Metabolic Disorders | 32.8 | 17.2 | 50.0 |
| Blood Diseases (and blood forming organs) | 22.1 | 25.3 | 47.4 |
| Mental Disorders | 27.8 | 15.6 | 43.4 |
| Nervous System and Sense Organs | 30.7 | 32.7 | 63.4 |
| Circulatory System | 33.3 | 24.1 | 57.4 |
| Respiratory System | 63.6 | 22.0 | 85.6 |
| Dental | 8.6 | 23.3 | 31.9 |
| Digestive System, other | 51.8 | 20.5 | 72.3 |
| Genito-urinary System | 51.3 | 27.6 | 78.9 |
| Skin | 60.2 | 26.7 | 86.9 |
| Musculoskeletal | 38.7 | 20.0 | 58.7 |
| Birth Defects | 24.2 | 18.6 | 42.8 |
| Birth Problems (Perinatal) | 17.5 | 22.5 | 40.0 |
| Accidents, Poisoning, and Violence | 61.8 | 15.7 | 77.5 |
| Immunizations | 0.0 | 32.8 | 32.8 |
| All other conditions | 35.5 | 23.1 | 58.6 |
| Status | | | |
| Cause for Exam | 55.0 | 23.3 | 78.3 |
| Found at Screen | 25.1 | 23.1 | 48.2 |
| Could be Either | 35.7 | 27.3 | 63.0 |

Four codes were used:

1) LCM would have been identical to ECM for one of the following reasons:
    a) child showed for first visit after screen and did not require further treatment;
    b) case worker was unable to contact client;
    c) treatment was not available;
    d) client refused treatment.

2) Child missed first appointment after screen.

3) Child came to first appointment after screen but required further treatment.

4) Unable to recode because monitor's record is unclear.

Appendix tables A-27 and A-28 detail the results of this recode, and pertinent findings are summarized below.

Proportion Resolved at First Visit After Screen

Our earlier Table 13 also shows the proportion of experimental problems that were resolved during the first treatment visit after screening. (In most cases, this was the second treatment, because most were initially treated during the screen.) A total of 24.7% of problems were resolved at the first visit. Immunizations (32.8%) and nervous system and sense organ problems (32.7%) were the most likely to be resolved at this time.

The final column of Table 13 shows that exactly two-thirds (66.7%) of experimental problems were resolved either at the screen or within one visit afterwards. This proportion was greatest (72.1%) for the four high volume providers and least (35.8%) for TPCHD. Over three-quarters (78.3%) of the problems that caused the office visit at which screening occurred were resolved, but less than a third of dental problems (31.9%) and immunizations (32.8%) were completed.

Number of Treatments

Column 11 of Table A-28 shows that 52.9% of experimental problems received only a single treatment, either at the screen (42.0%) or later (10.9%). The proportion needing one treatment was lowest for infants (47.1%) and highest for teenagers (66.8%). By ICDA group, birth problems and blood diseases were the most likely to require multiple treatments (81.6% and 76.3% respectively).

Proportion Missing First Appointment

Table A-27 shows that 6.8% of children who needed treatment after screening were reported to have missed their first appointment*. By age group, the proportion was highest for preschool children - 9.0%. By provider type, it was highest for TPCHD - 14.4%. Children with dental problems (9.7%) and immunization deficiencies (16.1%) were also especially likely to have missed their first appointment.

## Problems Requiring Monitoring Under Alternative Strategies

The figures provided in Tables A-18, A-25 and A-28 can be combined in such a way as to show the amount of case monitoring that would be required under alternative strategies. Table showed the mean number of problems per screen regardless of whether or not they needed any treatment at all after the initial visit. Table A-28 shows that the mean number of referred problems per screen was 0.63, or approximately two-thirds of the full rate. Under full case monitoring to treatment completion, a program under the circumstances of Pierce County's could expect to monitor 0.63 problems for every screen performed. The requirement would be especially high for health department well-child clinics - 0.79 problems per screen - because they treat very few problems at screen. It would also be high for those screeners with high overall problem finding rates.

If case monitoring was only required to treatment initiation, only 0.24 problems per screen would need to be followed. These would mostly be referrals to someone other than the original screener because most problems referred to self were initially treated during the screen. Under these conditions, TPCHD at 0.74 problems per screen, would be by far the largest producer of monitored problems; the next biggest producer, low volume providers, showed only 0.24 untreated problems per screen.

Under the limited monitoring strategy followed during the project's last six months, the number of problems needing follow-up would be exactly the same as under extended monitoring. For an average of 0.23 problems per screen, however, LCM would not be enough either because multiple visits were required or because the child missed his first appointment after screen. This column again shows that TPCHD was the largest producer of extra work because each of its screens produced an average of 0.39 problems that required extended follow-up. The fact that TPCHD probably did the most effective preventive health screening in this project (see Chapter 16) must be balanced against the fact that it also produced the most work per screen for case monitors.

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*This proportion was reported to the 3.8% for the ECM group and 19.6% for the LCM, however, even though theoretically there should have been no difference between the two groups. The variable at issue was coded ex-post factor, by different individuals at different times, and it is likely that the coding procedure shifted. The project feels that the 19.6% figure is the more accurate.

# TABLE 14: MEAN NUMBER OF PROBLEMS PER SCREEN UNDER ALTERNATIVE CASE MONITORING POLICIES

| | N* | Monitoring to Treatment Completion | Monitoring to Treatment Initiation | Mean Number of Problems Requiring More than Limited Monitoring |
|---|---|---|---|---|
| Total | 4059 | 0.63 | 0.24 | 0.23 |
| Age | | | | |
| Under 1 | 1416 | 0.59 | 0.15 | 0.21 |
| 1-6 | 1631 | 0.67 | 0.29 | 0.24 |
| 7-13 | 739 | 0.65 | 0.29 | 0.20 |
| 14-20 | 273 | 0.56 | 0.29 | 0.16 |
| Provider | | | | |
| High Volume | 1613 | 0.76 | 0.15 | 0.24 |
| Low Volume | 1614 | 0.51 | 0.24 | 0.20 |
| Community Clinics | 415 | 0.50 | 0.17 | 0.17 |
| TPCHD | 366 | 0.79 | 0.74 | 0.39 |
| Individual Providers | | | | |
| Doctor A | 805 | 0.64 | 0.10 | 0.17 |
| Doctor B | 236 | 1.45 | 0.16 | 0.39 |
| Doctor C | 251 | 0.58 | 0.17 | 0.21 |
| Doctor D | 320 | 0.68 | 0.24 | 0.17 |
| Doctor E | 344 | 0.45 | 0.27 | 0.18 |
| Doctor F | 339 | 0.61 | 0.24 | 0.22 |
| Doctor G | 283 | 0.72 | 0.34 | 0.28 |
| Doctor H | 63 | 0.48 | 0.17 | 0.19 |

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*Experimental group only.

Table 15 follows the same outline and shows the distribution of problems by various characteristics under alternative monitoring strategies. These distributions are, of course, specific to the Pierce County project and may not be applicable elsewhere. If the county had followed the national strategy of monitoring to treatment initiation only, 37.2% of problems followed would have been immunizations, and 15.3% would have been nervous system and sense organ problems. Twenty-eight percent would have derived from health department well-child clinics even though only 8.8% of screens were performed there. Slightly more than half would have been referrals to someone other than the screener.

## Summary

This chapter has analyzed the number and types of problems that would have been followed under alternative case monitoring strategies in Pierce County. Three strategies have been considered: full monitoring to treatment completion, monitoring only to initiation of treatment, and limited monitoring until the first visit after screening.

Although the problem finding rate was quite high in the Pierce County project, more than three-quarters of the problems reported were given at least initial treatment during the screen itself, and 42% were fully treated. Monitoring to treatment completion was required for 0.63 problems per screen, while follow-up to treatment initiation - a policy not followed in Pierce County - would have been needed for 0.24 problems per screen. These rates may be used to estimate the number of problems that would need to be followed in similar circumstances elsewhere.

In Chapter 16, we concluded that TPCHD was the most effective screener in Pierce County, at least partly because it lacked the willingness or the facility to treat any but the most minor problems. Since their clients were generally well, clinic staff were able to do full and careful screens and to discover more of the dental, vision and hearing problems that EPSDT was intended to find. This chapter has shown, on the other hand, that TPCHD screens required more follow-up, both because so little treatment was given at screen and because the problems found were less likely to be self-limiting.

The state of Washington and other states in a similar position clearly have two choices: either to maximize the effectiveness of screening through a well-child setting or to minimize the amount of case monitoring required, by screening in physician's offices. This is a particularly clear choice if only follow up to treatment initiation is required, but it also holds true under the other variants evaluated here. The choice is between a meaningful program as Congress initially intended it and a paper program that satisfies Federal regulation but does rather little for the children involved.

TABLE 15: DISTRIBUTION OF PROBLEMS NEEDING MONITORING UNDER ALTERNATIVE POLICIES

| | Monitoring to Treatment Completion | | Monitoring to Treatment Initiation | | ECM Differs from LCM | |
|---|---|---|---|---|---|---|
| | N | % | N | % | N | % |
| Age | | | | | | |
| Under 1 | 839 | 32.7 | 213 | 21.6 | 294 | 32.9 |
| 1-6 | 1100 | 42.9 | 476 | 48.2 | 383 | 42.8 |
| 7-13 | 479 | 18.7 | 218 | 22.1 | 175 | 19.6 |
| 14-20 | 146 | 5.7 | 80 | 8.1 | 42 | 4.7 |
| | 2564 | 100.0 | 987 | 100.0 | 894 | 100.0 |
| Provider | | | | | | |
| High volume | 1225 | 48.2 | 236 | 24.4 | 381 | 42.8 |
| Low volume | 821 | 32.3 | 391 | 40.4 | 313 | 35.1 |
| Community clinics | 206 | 8.1 | 70 | 7.2 | 67 | 7.5 |
| TPCHD | 289 | 11.4 | 271 | 28.0 | 130 | 14.6 |
| | 2541 | 100.0 | 968 | 100.0 | 891 | 100.0 |
| Referral | | | | | | |
| Self | 1992 | 77.7 | 478 | 48.5 | 611 | 68.4 |
| Other | 572 | 22.3 | 507 | 51.5 | 282 | 31.5 |
| | 2564 | 100.0 | 985 | 100.0 | 893 | 100.0 |
| ICDA | | | | | | |
| Infective Diseases and Parasites | 72 | 2.8 | 14 | 1.4 | 19 | 2.1 |
| Nutritional Deficiencies, Endocrine and Metabolic Disorders | 95 | 3.7 | 27 | 2.7 | 38 | 4.3 |
| Blood Diseases (and blood forming organs) | 170 | 6.6 | 9 | 0.9 | 68 | 7.6 |
| Mental Disorders | 147 | 5.7 | 68 | 6.9 | 78 | 8.7 |
| Nervous System and Sense Organs | 431 | 16.8 | 151 | 15.3 | 140 | 15.7 |
| Circulatory System | 37 | 1.4 | 15 | 1.5 | 9 | 1.0 |
| Respiratory System | 389 | 15.2 | 26 | 2.6 | 88 | 9.8 |
| Dental | 110 | 4.3 | 107 | 10.8 | 48 | 5.4 |
| Digestive, Other | 82 | 3.2 | 21 | 2.1 | 33 | 3.7 |
| Genito-urinary system | 79 | 3.1 | 19 | 1.9 | 22 | 2.5 |
| Skin | 206 | 8.0 | 12 | 1.2 | 33 | 3.7 |
| Musculoskeletal | 46 | 1.8 | 20 | 2.0 | 23 | 2.6 |
| Birth Defects | 121 | 4.7 | 67 | 6.8 | 66 | 7.4 |
| Birth Problems (perinatal) | 33 | 1.3 | 4 | 0.4 | 18 | 2.0 |
| Accidents, Poisoning, and Violence | 34 | 1.3 | 12 | 1.2 | 11 | 1.2 |
| Immunizations | 384 | 15.0 | 367 | 37.2 | 154 | 17.2 |
| All other conditions | 128 | 5.0 | 48 | 4.9 | 46 | 5.1 |
| | 2564 | 100.0 | 987 | 100.0 | 894 | 100.0 |
| Status | | | | | | |
| Cause for Exam | 864 | 33.7 | 133 | 13.5 | 258 | 28.9 |
| Found at Screen | 667 | 26.0 | 332 | 33.6 | 282 | 31.5 |
| Could be Either | 1033 | 40.3 | 522 | 52.9 | 354 | 39.6 |
| | 2564 | 100.0 | 987 | 100.0 | 894 | 100.0 |

# APPENDIX A

# TABLES

## TABLE A-1: RATIO BETWEEN ACTUAL AND EXPECTED INFANT RESCREENS, BY TIMING STATUS*

| | All Providers | | High Volume | | Low Volume | |
|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % |
| **CONTROL** | | | | | | |
| Expected Rescreens | 745 | | 317 | | 383 | |
| Actual/Expected | | | | | | |
| Correctly Timed Rescreens Only | 356 | 47.8 | 147 | 46.4 | 192 | 50.1 |
| Correctly Timed Plus 'Wrong' Periods | 480 | 64.4 | 208 | 65.6 | 240 | 62.7 |
| All Rescreens | 549 | 73.7 | 253 | 79.8 | 262 | 68.4 |
| **EXTENDED MONITORING**** | | | | | | |
| Expected Rescreens | 1096 | | 528 | | 465 | |
| Actual/Expected | | | | | | |
| Correctly Timed Rescreens Only | 493 | 45.0 | 243 | 46.0 | 219 | 47.1 |
| Correctly Timed Plus 'Wrong' Periods | 652 | 59.5 | 326 | 61.7 | 276 | 59.4 |
| All Rescreens | 757 | 69.1 | 387 | 73.3 | 313 | 67.3 |
| **LIMITED MONITORING** | | | | | | |
| Expected Rescreens | 328 | | 119 | | 175 | |
| Actual/Expected | | | | | | |
| Correctly Timed Rescreens Only | 189 | 57.6 | 65 | 54.6 | 115 | 65.7 |
| Correctly Timed Plus 'Wrong' Periods | 243 | 74.1 | 91 | 76.5 | 140 | 80.0 |
| All Rescreens | 282 | 86.0 | 104 | 87.4 | 164 | 93.7 |

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*Community clinics and TPCHD are omitted from this table because the expected number of rescreens in each case was below 25.

**Infants first screened after May 1, 1978 only.

## TABLE A-2: ANNUAL RESCREEN RATIOS FOR CHILDREN OVER ONE*

| | | Interval between First and Second Screen | | | Total Rescreened | Not Rescreened |
|---|---|---|---|---|---|---|
| | N | Under 12 Months | 12-16 Months | Over 16 Months | | |
| CONTROL GROUP | | | | | | |
| Total | 630 | 27.5% | 9.7% | 3.0% | 40.2% | 59.8% |
| Age | | | | | | |
| 1-6 | 353 | 32.9 | 7.9 | 2.8 | 43.6 | 56.4 |
| 7-13 | 218 | 19.3 | 11.5 | 3.2 | 34.0 | 66.1 |
| 14-20 | 59 | 25.4 | 13.6 | 3.4 | 42.4 | 57.6 |
| Provider | | | | | | |
| High volume | 304 | 27.3 | 13.2 | 3.3 | 43.8 | 56.3 |
| Low volume | 144 | 25.7 | 4.9 | 4.2 | 34.8 | 65.3 |
| Community Clinics | 99 | 30.3 | 5.1 | 0.0 | 35.4 | 64.6 |
| TPCHD | 83 | 27.7 | 10.8 | 3.6 | 42.1 | 57.8 |
| EXPERIMENTAL GROUP | | | | | | |
| Total | 668 | 23.7% | 16.8% | 4.0% | 44.5% | 55.5% |
| Age | | | | | | |
| 1-6 | 431 | 29.2 | 17.6 | 4.4 | 51.2 | 48.7 |
| 7-13 | 174 | 14.9 | 17.8 | 4.0 | 36.7 | 63.2 |
| 14-20 | 63 | 9.5 | 7.9 | 1.6 | 19.0 | 81.0 |
| Provider | | | | | | |
| High volume | 294 | 22.1 | 21.4 | 5.1 | 48.6 | 51.4 |
| Low volume | 224 | 23.7 | 13.4 | 3.1 | 40.2 | 59.8 |
| Community Clinics | 89 | 25.8 | 10.1 | 5.6 | 41.5 | 58.4 |
| TPCHD | 61 | 27.9 | 16.4 | 0.0 | 44.3 | 55.7 |

*Children first screened in 1977 only.

## TABLE A-3: PROPORTION OF CASES CONVERTED AND PROPORTION OF CLIENTS RETAINED (CASES WITH AT LEAST ONE REFERRAL ONLY)

| | PROPORTION CONVERTED | | | | | | PROPORTION RETAINED | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CONTROL | | EXPERIMENTAL | | | | CONTROL | | EXPERIMENTAL | | | |
| | | | ECM | | LCM | | | | ECM | | LCM | |
| | N | % | N | % | N | % | N | % | N | % | N | % |
| Total | 259 | 36.7 | 1094 | 65.6 | 256 | 60.9 | 341 | 51.9 | 1338 | 71.4 | 356 | 71.9 |
| **Age** | | | | | | | | | | | | |
| Under 1 | 77 | 44.2 | 418 | 70.1 | 54 | 64.8 | 106 | 59.4 | 495 | 73.7 | 81 | 76.5 |
| 1-6 | 111 | 24.3 | 432 | 60.9 | 140 | 55.7 | 139 | 39.6 | 535 | 68.0 | 185 | 66.4 |
| 7-13 | 57 | 49.1 | 190 | 68.4 | 44 | 72.7 | 74 | 60.8 | 233 | 74.2 | 68 | 82.4 |
| 14-20 | 14 | 42.9 | 54 | 59.3 | - | - | - | - | 75 | 70.7 | - | - |
| **Provider** | | | | | | | | | | | | |
| High Volume | 128 | 38.8 | 524 | 66.6 | 67 | 73.1 | 174 | 55.7 | 638 | 71.8 | 101 | 82.2 |
| Low Volume | 79 | 34.2 | 355 | 66.8 | 116 | 63.8 | 93 | 44.1 | 440 | 73.0 | 161 | 73.9 |
| Community Clinics | - | - | 106 | 68.9 | - | - | - | - | 124 | 72.6 | - | - |
| TPCHD | 31 | 29.0 | 96 | 59.4 | 56 | 41.1 | 52 | 57.7 | 123 | 68.3 | 70 | 52.9 |
| **Individual Provider** | | | | | | | | | | | | |
| Doctor A | 49 | 51.0 | 208 | 64.9 | 51 | 74.5 | 60 | 60.0 | 245 | 70.2 | 75 | 82.7 |
| Doctor B | 33 | 36.4 | 135 | 79.3 | - | - | 52 | 59.6 | 169 | 81.1 | - | - |
| Doctor C | 33 | 30.3 | 86 | 60.5 | - | - | 42 | 45.2 | 101 | 66.3 | - | - |
| Doctor D | - | - | 95 | 57.9 | - | - | - | - | 123 | 66.7 | 25 | 80.0 |
| Doctor E | - | - | 78 | 62.8 | 27 | 59.3 | - | - | 93 | 68.8 | 36 | 69.4 |
| Doctor F | - | - | 83 | 74.7 | 41 | 68.3 | - | - | 100 | 79.0 | 54 | 75.9 |
| Doctor G | - | - | 72 | 65.3 | 27 | 74.1 | - | - | 89 | 70.8 | 39 | 82.1 |
| Doctor H | - | - | - | - | - | - | 27 | 55.6 | - | - | - | - |
| **CHW** | | | | | | | | | | | | |
| 14771 | | | 338 | 61.8 | | | | | 432 | 70.1 | | |
| 17876 | | | 202 | 65.8 | | | | | 239 | 71.1 | | |
| 37054 | | | 317 | 66.9 | | | | | 387 | 72.1 | | |
| 51410 | | | 93 | 58.1 | | | | | 114 | 65.8 | | |
| 94256 | | | 114 | 79.8 | | | | | 130 | 80.0 | | |

TABLE A-4: PROPORTION OF PROBLEMS RESOLVED

| | Excluding Problems Fully Treated at Screen | | | Including Problems Fully Treated at Screen | | | Where LCM Would Differ From ECM | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Missed First Appt. | | Multiple Visits | |
| | Control | ECM | LCM | Control* | ECM | LCM | Actually Received ECM | Actually Received LCM | Actually Received ECM | Actually Received LCM |
| Total | 37.9% | 70.1% | 61.9% | 70.0% | 82.6% | 84.4 | 52.5% | 12.0% | 78.9% | 82.1% |
| Age | | | | | | | | | | |
| Under 1 | 43.8 | 73.8 | 65.3 | 73.0 | 84.2 | 87.3 | 63.2 | - | 81.1 | - |
| 1-6 | 27.8 | 65.7 | 56.0 | 63.8 | 79.2 | 80.4 | 48.0 | 10.9 | 74.4 | 87.1 |
| 7-13 | 46.5 | 75.0 | 75.4 | 74.5 | 86.3 | 90.9 | 50.0 | - | 82.2 | - |
| 14-20 | 55.0 | 59.3 | 66.7 | 81.9 | 82.1 | 85.7 | 33.3 | - | 76.9 | - |
| Provider | | | | | | | | | | |
| High Volume | 39.2 | 71.7 | 72.3 | 73.5 | 84.5 | 92.4 | - | - | 80.7 | - |
| Low Volume | 36.2 | 70.4 | 67.5 | 68.1 | 83.4 | 85.9 | - | 20.5 | 77.8 | - |
| Community Clinics | 39.3 | 75.3 | 60.7 | 70.4 | 81.8 | 77.1 | - | - | - | - |
| TPCHD | 35.7 | 61.7 | 35.4 | 42.1 | 66.9 | 46.4 | - | 4.0 | 71.4 | - |
| Individual Providers | | | | | | | | | | |
| Doctor A | 50.9 | 70.7 | 74.7 | | 88.2 | 93.6 | - | - | 83.3 | - |
| Doctor B | 41.9 | 82.1 | - | | 84.5 | - | - | - | 92.2 | - |
| Doctor C | 27.1 | 58.9 | - | | 66.9 | - | - | - | 71.9 | - |
| Doctor D | -** | 63.8 | - | | 82.9 | 85.5 | - | - | 72.0 | - |
| Doctor E | - | 64.9 | 67.7 | | 82.7 | 92.1 | - | - | 72.0 | - |
| Doctor F | - | 75.7 | 72.9 | | 81.5 | 82.1 | - | - | 80.0 | - |
| Doctor G | - | 73.2 | 69.8 | | 88.0 | 87.9 | - | - | 76.5 | - |
| To Whom Referred | | | | | | | | | | |
| Self | 29.8 | 71.5 | 66.1 | | | | 53.2 | 7.9 | 75.5 | 80.6 |
| Other | 53.9 | 63.6 | 48.9 | | | | - | - | 86.1 | - |
| ICDA | | | | | | | | | | |
| Infective Diseases and Parasites | - | 88.1 | - | 90.9% | 95.2 | 97.1 | - | - | - | - |
| Nutritional Deficiencies, Endocrine and Metabolic Disorders | - | 54.0 | - | 73.6 | 68.5 | - | - | - | - | - |
| Blood Disease (and blood forming organs | - | 58.4 | - | 58.8 | 66.9 | 73.5 | - | - | 64.9 | - |
| Mental Disorders | 21.4 | 59.7 | - | 34.1 | 74.8 | 68.6 | - | - | - | - |
| Nervous System and Sense Organs | 48.1 | 73.9 | 66.2 | 65.4 | 82.1 | 79.7 | - | - | 83.9 | - |
| Circulatory System | - | 55.6 | - | 50.9 | 70.7 | - | - | - | - | - |
| Respiratory System | - | 79.5 | 71.6 | 88.7 | 92.3 | 92.9 | - | - | 87.1 | - |
| Dental | 71.9 | 58.7 | 56.3 | - | 61.2 | 63.2 | - | - | - | - |
| Digestive System, Other | - | 78.6 | - | - | 89.9 | 91.2 | - | - | - | - |
| Genito-urinary System | - | 84.9 | - | 89.4 | 92.2 | - | - | - | - | - |
| Skin | - | 82.4 | 76.0 | 83.8 | 92.2 | 95.1 | - | - | - | - |
| Musculoskeletal | - | - | - | 71.2 | 86.4 | - | - | - | - | - |
| Birth Defects | - | 68.5 | - | 63.6 | 76.0 | 80.0 | - | - | 84.0 | - |
| Birth Problems (perinatal) | - | - | - | 45.5 | 80.6 | - | - | - | - | - |
| Accidents, Poisoning, and Violence | - | - | - | 81.6 | 90.7 | 88.9 | - | - | - | - |
| Immunizations | 34.0 | 53.8 | 49.3 | 34.0 | 53.6 | 48.6 | - | 7.7 | 61.5 | - |
| All other conditions | 31.0 | 68.8 | - | 54.6 | 77.5 | 87.2 | - | - | - | - |
| Status | | | | | | | | | | |
| Cause for Exam | 31.6 | 79.3 | 68.6 | | 90.5 | 90.9 | - | 13.8 | 86.9 | - |
| Found at Screen | 47.6 | 62.0 | 60.8 | | 72.0 | 75.5 | - | - | 77.7 | - |
| Could be Either | 33.5 | 67.2 | 56.2 | | 78.9 | 79.0 | 43.3 | 11.1 | 74.1 | - |

*Since only a minority of control group problems were recorded on medical referral sheets, these results are spatially based on a hand tally of control group screening sheets.

**Dashes indicate that fewer than 25 problems are available for analysis.

## TABLE A-5: PROBLEM CLOSURE STATUSES FOR REFERRED PROBLEMS

| | | AGE | | | | PROVIDER | | | | REFERRAL | | STATUS | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total | 1-6 | 7-13 | 7-13 | 14-20 | High Volume | Low Volume | Community Clinic | TPCHD | To Self | To Other | Cause for Exam | Found at Screen | Could be Either |
| | | | | | | | CONTROL GROUP | | | | | | | |
| N | 471 | 134 | 202 | 107 | 28 | 252 | 113 | 29 | 77 | 311 | 160 | 110 | 153 | 208 |
| False Positive | 0.8 | 1.5 | 1.0 | 0.0 | 0.0 | 0.8 | 1.8 | 0.0 | 0.0 | 1.3 | 0.0 | 1.8 | 0.7 | 0.5 |
| Treatment Completed | 27.4 | 30.6 | 20.8 | 33.6 | 35.7 | 27.4 | 28.3 | 34.5 | 23.4 | 21.9 | 38.1 | 19.1 | 35.9 | 25.5 |
| Treatment Terminated | 1.7 | 0.7 | 1.5 | 2.8 | 3.6 | 1.6 | 0.9 | 3.4 | 2.6 | 1.3 | 2.5 | 2.7 | 2.0 | 1.0 |
| Under Treatment 6 months after Referred | 21.9 | 26.9 | 18.8 | 19.6 | 28.6 | 25.4 | 15.0 | 3.4 | 27.3 | 19.9 | 25.6 | 29.1 | 18.3 | 20.7 |
| Treatment not Advised | 0.2 | 0.0 | 0.0 | 0.9 | 0.0 | 0.0 | 0.9 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.7 | 0.0 |
| Treatment not Available | 0.2 | 0.0 | 0.0 | 0.9 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.0 | 0.7 | 0.0 |
| Family Moved | 2.8 | 0.0 | 5.9 | 0.0 | 3.6 | 3.2 | 1.8 | 6.9 | 1.3 | 3.2 | 1.9 | 0.0 | 2.6 | 4.3 |
| Unable to contact | 11.0 | 12.7 | 10.9 | 9.3 | 10.7 | 12.7 | 11.5 | 13.8 | 3.9 | 12.5 | 8.1 | 10.0 | 12.4 | 10.6 |
| Refused Treatment/ Repeated Appointment Failure | 33.8 | 27.6 | 41.1 | 31.8 | 17.9 | 28.6 | 39.8 | 37.9 | 40.3 | 39.2 | 23.1 | 37.3 | 26.8 | 37.0 |
| Other | 0.2 | 0.0 | 0.0 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 0.3 | 0.0 | 0.0 | 0.0 | 0.5 |
| | | | | | | | EXTENDED MONITORING | | | | | | | |
| N | 2055 | 727 | 831 | 383 | 114 | 1063 | 609 | 168 | 194 | 1618 | 432 | 683 | 531 | 841 |
| False Positive | 1.6 | 0.3 | 1.9 | 3.1 | 1.8 | 0.7 | 1.3 | 1.2 | 7.7 | 1.1 | 3.5 | 1.0 | 3.2 | 1.0 |
| Treatment Completed | 50.8 | 61.9 | 45.8 | 47.0 | 28.1 | 54.4 | 48.8 | 58.9 | 34.5 | 56.0 | 31.7 | 60.5 | 36.0 | 52.2 |
| Treatment Terminated | 6.5 | 1.7 | 6.9 | 12.5 | 14.9 | 5.7 | 7.7 | 4.8 | 9.3 | 4.9 | 12.5 | 7.8 | 10.5 | 3.0 |
| Under Treatment 6 months after Referred | 13.8 | 10.9 | 14.8 | 14.4 | 22.8 | 11.8 | 16.4 | 11.9 | 19.6 | 11.2 | 23.4 | 12.0 | 16.6 | 13.4 |
| Treatment not Advised | 1.8 | 1.7 | 1.8 | 2.3 | 1.8 | 2.4 | 1.3 | 1.8 | 1.0 | 1.5 | 2.3 | 0.3 | 3.0 | 2.4 |
| Treatment not Available | 0.2 | 0.0 | 0.2 | 0.5 | 0.0 | 0.1 | 0.3 | 0.0 | 0.5 | 0.0 | 0.9 | 0.0 | 0.8 | 0.0 |
| Family Moved | 6.6 | 5.2 | 8.2 | 4.2 | 11.4 | 7.1 | 4.8 | 5.4 | 8.8 | 6.1 | 8.1 | 4.4 | 8.5 | 7.1 |
| Unable to contact | 11.4 | 11.7 | 12.8 | 7.6 | 12.3 | 12.2 | 10.2 | 7.1 | 8.8 | 12.0 | 9.3 | 9.7 | 12.2 | 12.2 |
| Refused Treatment/ Repeated Appointment Failure | 6.7 | 5.6 | 7.4 | 7.3 | 6.1 | 5.3 | 7.8 | 8.3 | 9.8 | 6.5 | 7.6 | 3.7 | 8.3 | 8.1 |
| Other | 0.7 | 1.2 | 0.1 | 1.0 | 0.9 | 0.5 | 1.5 | 0.6 | 0.0 | 0.7 | 0.7 | 0.7 | 0.9 | 0.6 |
| | | | | | | | LIMITED MONITORING | | | | | | | |
| N | 507 | 110 | 269 | 96 | 32 | 162 | 212 | 38 | 95 | 373 | 133 | 179 | 136 | 192 |
| False Positive | 1.6 | 0.9 | 1.5 | 2.1 | 3.1 | 0.0 | 2.8 | 2.6 | 1.1 | 1.6 | 1.5 | 0.6 | 4.4 | 0.5 |
| Treatment Completed | 46.0 | 44.5 | 44.6 | 49.0 | 53.1 | 53.1 | 49.5 | 44.7 | 26.3 | 51.5 | 30.8 | 53.6 | 40.4 | 42.7 |
| Treatment Terminated | 0.8 | 0.0 | 0.4 | 2.1 | 3.1 | 0.0 | 0.5 | 0.0 | 3.2 | 0.3 | 2.3 | 0.0 | 2.9 | 0.0 |
| Under Treatment 6 months after Referred | 21.5 | 25.5 | 17.8 | 30.2 | 12.5 | 22.8 | 23.1 | 21.1 | 15.8 | 18.2 | 30.8 | 20.1 | 22.8 | 21.9 |
| Treatment not Advised | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Treatment not Available | 0.6 | 0.0 | 1.1 | 0.0 | 0.0 | 0.0 | 0.5 | 5.3 | 0.0 | 0.0 | 2.3 | 0.0 | 1.5 | 0.5 |
| Family Moved | 2.2 | 1.8 | 1.9 | 2.1 | 6.3 | 0.6 | 1.4 | 2.6 | 6.3 | 1.6 | 3.8 | 2.8 | 3.7 | 0.5 |
| Unable to contact | 8.9 | 8.2 | 10.8 | 4.2 | 9.4 | 3.1 | 5.7 | 13.2 | 24.2 | 6.7 | 14.3 | 6.7 | 11.0 | 9.4 |
| Refused Treatment/ Repeated Appointment Failure | 17.2 | 13.6 | 21.6 | 10.4 | 12.5 | 16.7 | 16.5 | 7.9 | 23.2 | 18.2 | 14.3 | 15.1 | 11.8 | 22.9 |
| Other | 1.4 | 5.5 | 0.4 | 0.0 | 0.0 | 3.7 | 0.0 | 2.6 | 0.0 | 1.9 | 0.0 | 1.1 | 1.5 | 1.6 |

## TABLE A-6: DISTRIBUTION OF UNRESOLVED PROBLEMS

| | Control | ECM | LCM |
|---|---|---|---|
| N | 224 | 237 | 83 |
| Age | | | |
| Under 1 | 24.1 | 25.3 | 13.3 |
| 1-6 | 52.2 | 45.1 | 69.9 |
| 7-13 | 19.6 | 19.0 | 8.4 |
| 14-20 | 4.0 | 10.5 | 8.4 |
| TOTAL | 100.0 | 100.0 | 100.0 |
| Provider | | | |
| High Volume | 50.0 | 29.2 | 7.2 |
| Low Volume | 26.3 | 39.3 | 32.5 |
| Community Clinic | 7.6 | 8.2 | 6.0 |
| TPCHD | 16.1 | 23.3 | 54.2 |
| TOTAL | 100.0 | 100.0 | 100.0 |
| To whom referred | | | |
| Self | 75.9 | 55.7 | 48.2 |
| Other | 23.7 | 44.3 | 50.6 |
| TOTAL | 100.0 | 100.0 | 100.0 |
| Drop-Out* | | | |
| Between Screen and First Appointment | | 78.1 | 2.1 |
| At First Appointment | | 5.9 | 91.7 |
| After First Appointment | | 16.0 | 6.3 |
| | | 100.0 | 100.0 |
| ICDA | | | |
| Infective Diseases and Parasites | 1.3 | 0.4 | 1.2 |
| Nutritional Deficiencies, Endocrine and Metabolic Disorders | 5.4 | 4.6 | 2.4 |
| Blood Diseases (and blood forming organs) | 6.3 | 0.8 | 2.4 |
| Mental Disorders | 9.8 | 5.9 | 9.6 |
| Nervous System and Sense Organs | 12.5 | 11.8 | 9.6 |
| Circulatory System | 4.0 | 1.7 | 1.2 |
| Respiratory System | 3.6 | 0.8 | 0.0 |
| Dental | 4.0 | 11.0 | 16.9 |
| Digestive System, other | 4.0 | 2.1 | 0.0 |
| Genito-urinary System | 0.4 | 1.3 | 0.0 |
| Skin | 2.7 | 0.4 | 0.0 |
| Musculoskeletal | 2.7 | 0.4 | 1.2 |
| Birth Defects | 3.1 | 6.8 | 3.6 |
| Birth Problems (Perinatal) | 1.3 | 0.4 | 1.2 |
| Accidents, Poisoning, and Violence | 2.2 | 0.4 | 1.2 |
| Immunizations | 27.7 | 47.3 | 43.4 |
| All other conditions | 8.9 | 3.8 | 6.0 |
| | 100.0 | 100.0 | 100.0 |
| Status | | | |
| Cause for Exam | 22.8 | 6.8 | 15.7 |
| Found at Screen | 29.0 | 31.6 | 33.7 |
| Could be Either | 48.2 | 61.6 | 50.6 |
| | 100.0 | 100.0 | 100.0 |
| Closure Status | | | |
| Treatment not available | 0.4 | 1.7 | 3.6 |
| Family moved | 5.8 | 26.6 | 7.2 |
| Unable to contact | 23.2 | 35.9 | 26.5 |
| Refused treatment | 70.1 | 34.2 | 62.7 |
| Other | 0.4 | 1.7 | 0.0 |

*The first category includes those who are lost to follow-up or refuse treatment before scheduling their first appointment after screening. The second category includes those who schedule a first appointment but then fail to keep it. The final category includes those who require two or more treatment visits after screening. These data are only available for the experimental group.

## TABLE A-7: TIME OF PROBLEM RESOLUTION

| | CONTROL | | | | EXPERIMENTAL | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Resolved | | | Not Resolved | Resolved | | | | Not Resolved |
| | At Screen | Later | Still Under Treatment | | At Screen | First Visit After Screen | Later | Still Under Treatment | |
| Total | 51.7% | 14.2% | 10.6% | 23.4% | 42.0% | 24.7% | 8.8% | 9.0% | 15.4% |
| Extended Monitoring | | | | | 38.4 | 27.0 | 10.1 | 8.6 | 15.9 |
| Limited Monitoring | | | | | 53.3 | 17.8 | 4.6 | 10.3 | 14.0 |
| Age | | | | | | | | | |
| Under 1 | 52.0 | 15.3 | 13.1 | 19.6 | 40.4 | 26.7 | 11.1 | 7.7 | 14.1 |
| 1-6 | 49.9 | 11.2 | 9.5 | 29.4 | 40.2 | 24.4 | 7.4 | 9.5 | 18.5 |
| 7-13 | 52.4 | 17.8 | 9.3 | 20.5 | 45.5 | 24.6 | 8.8 | 9.8 | 11.3 |
| 14-20 | 59.7 | 15.8 | 11.5 | 12.9 | 50.7 | 17.6 | 6.2 | 10.3 | 15.2 |
| Provider | | | | | | | | | |
| High Volume | 56.4 | 12.7 | 11.2 | 19.7 | 47.4 | 24.7 | 8.0 | 7.1 | 12.9 |
| Low Volume | 50.0 | 15.3 | 7.6 | 27.1 | 42.9 | 23.6 | 8.8 | 10.5 | 14.1 |
| Community Clinic | 51.3 | 17.9 | 1.6 | 29.2 | 27.5 | 34.3 | 11.1 | 10.0 | 17.1 |
| TPCHD | 9.9 | 23.4 | 24.6 | 42.2 | 12.5 | 23.3 | 13.4 | 16.9 | 33.9 |
| Individual Provider | | | | | | | | | |
| Doctor A | | | | | 61.0 | 19.6 | 4.7 | 5.1 | 9.7 |
| Doctor B | | | | | 13.3 | 50.6 | 12.8 | 9.2 | 14.1 |
| Doctor C | | | | | 17.3 | 28.3 | 13.9 | 11.0 | 29.5 |
| Doctor D | | | | | 49.0 | 15.1 | 11.2 | 9.6 | 15.1 |
| Doctor E | | | | | 56.2 | 17.2 | 6.9 | 7.2 | 12.6 |
| Doctor F | | | | | 25.7 | 36.2 | 9.8 | 12.3 | 15.9 |
| Doctor G | | | | | 52.3 | 21.1 | 7.7 | 7.9 | 11.0 |
| Doctor H | | | | | 11.8 | 26.5 | 23.5 | 5.9 | 32.4 |
| ICDA | | | | | | | | | |
| Infective Diseases and Parasites | 78.8 | 9.4 | 4.7 | 7.1 | 62.0 | 24.1 | 7.0 | 2.7 | 4.3 |
| Nutritional Deficiencies Endocrine and Metabolic Disorders | 69.2 | 3.9 | 10.3 | 17.6 | 32.8 | 17.2 | 11.2 | 14.9 | 23.9 |
| Blood Diseases (and blood forming organs) | 50.0 | 6.2 | 14.6 | 29.2 | 22.1 | 25.3 | 13.4 | 10.6 | 28.6 |
| Mental Disorders | 16.2 | 9.6 | 38.7 | 35.4 | 27.8 | 15.6 | 7.3 | 30.7 | 18.5 |
| Nervous System and Sense Organs | 33.0 | 25.6 | 13.8 | 27.6 | 30.7 | 32.7 | 11.7 | 8.0 | 16.9 |
| Circulatory System | - | - | - | - | 33.3 | 24.1 | 7.4 | 11.1 | 24.1 |
| Respiratory System | 81.2 | 5.9 | 4.0 | 8.9 | 63.6 | 22.0 | 3.6 | 3.5 | 7.3 |
| Dental | 0.0 | 67.6 | 5.9 | 26.5 | 8.6 | 23.3 | 24.1 | 9.5 | 34.5 |
| Digestive System, other | 46.7 | 9.4 | 15.7 | 28.2 | 51.8 | 20.5 | 10.8 | 7.8 | 9.0 |
| Genito-urinary System | 63.0 | 23.1 | 4.6 | 9.3 | 51.3 | 27.6 | 10.9 | 3.2 | 7.1 |
| Skin | 78.4 | 5.4 | 0.0 | 16.2 | 60.2 | 26.7 | 4.1 | 2.1 | 7.0 |
| Musculoskeletal | 56.8 | 10.0 | 13.3 | 19.9 | 38.7 | 20.0 | 8.0 | 24.0 | 9.3 |
| Birth Defects | 22.2 | 24.9 | 31.1 | 21.8 | 24.2 | 18.6 | 14.9 | 24.8 | 17.4 |
| Birth Problems (Perinatal) | - | - | - | - | 17.5 | 22.5 | 27.5 | 15.0 | 17.5 |
| Accidents, Poisoning, and Violence | 70.7 | 7.3 | 9.8 | 12.2 | 61.8 | 15.7 | 4.5 | 9.0 | 9.0 |
| Immunizations | 0.0 | 32.7 | 4.1 | 63.3 | 0.0 | 32.8 | 12.4 | 13.8 | 41.0 |
| All other conditions | 34.3 | 16.4 | 12.7 | 36.5 | 35.5 | 23.1 | 10.8 | 14.0 | 16.7 |
| Status | | | | | | | | | |
| Cause for Exam | | | | | 55.0 | 23.3 | 6.6 | 6.3 | 8.8 |
| Found at Screen | | | | | 25.1 | 23.1 | 14.5 | 13.9 | 23.5 |
| Could be Either | | | | | 35.7 | 27.3 | 8.3 | 9.7 | 19.0 |

Table A-8: INTERVAL BETWEEN SCREEN AND FIRST TREATMENT, INCLUDING PROBLEMS TREATED AT SCREEN

| | CONTROL | | | | | | EXTENDED MONITORING | | | | | | LIMITED MONITORING | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Days Between Screen and Treatment | | | | | | Days Between Screen and Treatment | | | | | | Days Between Screen and Treatment | | | | | |
| | N | 0 | 1-60 | Total Within 60 | More Than 60 | Not Treated | N | 0 | 1-60 | Total Within 60 | More Than 60 | Not Treated | N | 0 | 1-60 | Total Within 60 | More Than 60 | Not Treated |
| TOTAL | 1421 | 68.9% | 12.8% | 81.7% | 2.6% | 15.7% | 3322 | 76.9% | 11.0% | 87.9% | 5.8% | 6.3% | 1073 | 52.7% | 35.6% | 88.3% | 4.3% | 7.4% |
| Age | | | | | | | | | | | | | | | | | | |
| Under 1 | 579 | 76.2 | 11.0 | 87.2 | 2.4 | 10.4 | 1157 | 84.5 | 6.6 | 91.1 | 4.7 | 4.2 | 240 | 54.2 | 38.7 | 92.9 | 2.5 | 4.6 |
| 1-6 | 541 | 65.4 | 9.9 | 75.3 | 3.8 | 20.9 | 1289 | 73.5 | 12.7 | 86.2 | 6.7 | 7.1 | 537 | 49.9 | 35.2 | 85.1 | 4.7 | 10.2 |
| 7-13 | 229 | 61.1 | 20.4 | 81.5 | 1.5 | 17.0 | 643 | 72.4 | 13.3 | 85.7 | 7.9 | 6.4 | 228 | 57.9 | 33.3 | 91.2 | 6.2 | 2.6 |
| 14-20 | 72 | 61.1 | 25.0 | 86.1 | 0.0 | 13.9 | 233 | 70.8 | 16.3 | 87.1 | 3.6 | 9.3 | 68 | 52.9 | 33.9 | 86.8 | 2.9 | 10.3 |
| Provider | | | | | | | | | | | | | | | | | | |
| High Volume | 921 | 76.7 | 9.8 | 86.5 | 2.4 | 11.1 | 1835 | 88.5 | 6.1 | 94.6 | 2.6 | 2.8 | 479 | 66.2 | 31.1 | 97.3 | 1.2 | 1.5 |
| Low Volume | 246 | 63.0 | 13.0 | 76.0 | 3.3 | 20.7 | 1006 | 70.8 | 13.8 | 84.6 | 7.8 | 7.6 | 423 | 49.9 | 39.0 | 88.9 | 5.4 | 5.7 |
| Community Clinics | 158 | 63.9 | 13.7 | 77.6 | 1.2 | 21.2 | 226 | 76.1 | 12.4 | 88.5 | 5.3 | 6.2 | 58 | 34.5 | 53.4 | 87.9 | 6.9 | 5.2 |
| TPCHD | 91 | 15.4 | 40.7 | 56.1 | 2.1 | 41.8 | 216 | 16.7 | 35.2 | 51.9 | 26.8 | 21.3 | 113 | 15.9 | 31.9 | 47.8 | 12.4 | 39.8 |

## TABLE A-9: INTERVAL BETWEEN SCREEN AND FIRST TREATMENT FOR PROBLEMS NOT TREATED AT SCREEN

| | CONTROL | | | | EXTENDED MONITORING | | | | LIMITED MONITORING | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Under 60 Days | Total Treated | Not Treated | N | Under 60 Days | Total Treated | Not Treated | N | Under 60 Days | Total Treated | Not Treated |
| Total | 465 | 38.9 | 49.4 | 50.5 | 758 | 47.0 | 73.2 | 26.8 | 229 | 45.0 | 65.5 | 34.5 |
| Age | | | | | | | | | | | | |
| Under 1 | 130 | 43.8 | 56.1 | 43.8 | 180 | 42.8 | 72.8 | 27.2 | 33 | 48.5 | 66.7 | 33.3 |
| 1-6 | 202 | 26.7 | 39.6 | 60.4 | 341 | 47.8 | 73.0 | 27.0 | 135 | 40.7 | 59.3 | 40.7 |
| 7-13 | 105 | 49.5 | 56.2 | 43.8 | 177 | 48.0 | 76.8 | 23.2 | 41 | 51.2 | 85.4 | 14.6 |
| 14-20 | 28 | 64.3 | 64.3 | 35.7 | 60 | 51.7 | 65.0 | 35.0 | 20 | 55.0 | 65.0 | 35.0 |
| Provider | | | | | | | | | | | | |
| High Volume | 248 | 40.7 | 52.4 | 47.6 | 211 | 52.6 | 75.8 | 24.2 | 25 | 48.0 | 72.0 | 28.0 |
| Low Volume | 111 | 31.5 | 44.1 | 55.9 | 294 | 47.3 | 74.1 | 25.9 | 97 | 51.5 | 75.3 | 24.7 |
| Community Clinic | 29 | 37.9 | 41.4 | 58.6 | 54 | 51.9 | 74.1 | 25.9 | 16 | 56.3 | 81.2 | 18.8 |
| TPCHD | 77 | 44.2 | 50.6 | 49.4 | 180 | 42.2 | 74.4 | 25.6 | 91 | 35.2 | 50.5 | 49.5 |
| Individual Provider | | | | | | | | | | | | |
| Doctor A | 69 | 42.0 | 56.5 | 43.5 | 72 | 54.2 | 76.4 | 23.6 | - | - | - | - |
| Doctor B | 88 | 43.2 | 54.6 | 45.5 | 38 | 78.9 | 89.4 | 10.5 | - | - | - | - |
| Doctor C | 59 | 35.6 | 42.4 | 57.6 | 41 | 43.9 | 65.9 | 34.1 | - | - | - | - |
| Doctor D | 32 | 40.6 | 56.2 | 43.8 | 60 | 40.0 | 73.3 | 26.7 | - | - | - | - |
| Doctor E | - | - | - | - | 69 | 23.2 | 65.2 | 34.8 | - | - | - | - |
| Doctor F | - | - | - | - | 52 | 55.8 | 75.0 | 25.0 | 29 | 51.7 | 72.3 | 27.6 |
| Doctor G | - | - | - | - | 73 | 52.1 | 74.0 | 26.0 | - | - | - | - |
| Doctor H | 35 | 31.4 | 48.5 | 51.4 | - | - | - | - | - | - | - | - |
| Referral | | | | | | | | | | | | |
| Self | 305 | 29.8 | 41.3 | 58.7 | 377 | 38.7 | 69.7 | 30.2 | 101 | 37.6 | 62.4 | 37.6 |
| Other | 155 | 56.1 | 64.5 | 35.5 | 380 | 55.0 | 76.6 | 23.4 | 127 | 51.2 | 68.5 | 31.5 |
| ICDA | | | | | | | | | | | | |
| Infective Diseases and Parasites | - | - | - | - | - | - | - | - | - | - | - | - |
| Nutritional Deficiencies, Endocrine and Metabolic Disorders | - | - | - | - | - | - | - | - | - | - | - | - |
| Blood Diseases (and blood forming organs) | - | - | - | - | - | - | - | - | - | - | - | - |
| Mental Disorders | 52 | 48.1 | 51.9 | 48.1 | 49 | 49.0 | 75.5 | 24.5 | - | - | - | - |
| Nervous System and Sense Organs | 67 | 56.7 | 58.2 | 41.8 | 116 | 50.0 | 80.2 | 19.8 | 35 | 57.1 | 77.1 | 22.9 |
| Circulatory System | - | - | - | - | - | - | - | - | - | - | - | - |
| Respiratory System | - | - | - | - | - | - | - | - | - | - | - | - |
| Dental | 34 | 55.9 | 73.5 | 26.5 | 71 | 47.9 | 67.6 | 32.4 | 36 | 41.7 | 61.1 | 38.9 |
| Digestive, Other | - | - | - | - | - | - | - | - | - | - | - | - |
| Genito-urinary system | - | - | - | - | - | - | - | - | - | - | - | - |
| Skin | - | - | - | - | - | - | - | - | - | - | - | - |
| Musculoskeletal | - | - | - | - | - | - | - | - | - | - | - | - |
| Birth Defects | 25 | 48.0 | 76.0 | 24.0 | 51 | 68.6 | 80.4 | 19.6 | - | - | - | - |
| Birth Problems (perinatal) | - | - | - | - | - | - | - | - | - | - | - | - |
| Accidents, Poisoning and Violence | - | - | - | - | - | - | - | - | - | - | - | - |
| Immunizations | 98 | 20.4 | 33.7 | 66.3 | 286 | 27.3 | 62.6 | 37.4 | 81 | 29.6 | 56.8 | 43.2 |
| All other conditions | 37 | 29.7 | 43.2 | 56.8 | 36 | 63.9 | 80.6 | 19.4 | - | - | - | - |
| Status | | | | | | | | | | | | |
| Cause for Exam | 106 | 44.3 | 49.1 | 50.9 | 107 | 70.1 | 89.7 | 10.3 | 26 | 38.5 | 57.7 | 42.3 |
| Found at Screen | 153 | 45.8 | 56.2 | 43.8 | 239 | 51.0 | 74.5 | 25.5 | 93 | 50.5 | 71.0 | 29.0 |
| Could be Either | 206 | 31.1 | 44.7 | 55.3 | 412 | 38.6 | 68.2 | 31.8 | 110 | 41.8 | 62.7 | 37.3 |

### TABLE A-10: IMMUNIZATION STATUS, BEFORE AND AFTER SCREEN

|  |  | Current at Screen Completion |  |  |  |
|---|---|---|---|---|---|
|  | N* | Current Before | Brought Current | Total | Additional Needed |
| **CONTROL GROUP** |  |  |  |  |  |
| Total | 1540 | 44.3 | 47.7 | 92.0 | 8.0 |
| Age |  |  |  |  |  |
| Under 1 | 669 | 38.1 | 55.3 | 93.4 | 6.6 |
| 1- 6 | 544 | 42.6 | 44.7 | 87.3 | 12.7 |
| 7-13 | 250 | 57.6 | 38.8 | 96.4 | 3.6 |
| 14-20 | 77 | 66.2 | 32.5 | 98.7 | 1.3 |
| Provider |  |  |  |  |  |
| High Volume | 766 | 45.7 | 47.8 | 93.5 | 6.5 |
| Low Volume | 495 | 37.8 | 50.3 | 88.1 | 11.9 |
| Community Clinic | 153 | 59.5 | 40.5 | 100.0 | 0.0 |
| TPCHD | 126 | 42.9 | 46.0 | 88.9 | 11.1 |
| **EXPERIMENTAL GROUP** |  |  |  |  |  |
| Total | 3937** | 48.6 | 41.6 | 90.2 | 9.8 |
| Age |  |  |  |  |  |
| Under 1 | 1406 | 43.1 | 47.8 | 90.9 | 9.1 |
| 1- 6 | 1593 | 45.1 | 42.1 | 87.2 | 12.8 |
| 7-13 | 698 | 62.0 | 31.7 | 93.7 | 6.3 |
| 14-20 | 240 | 65.0 | 30.4 | 95.4 | 4.6 |
| Provider |  |  |  |  |  |
| High Volume | 1571 | 46.0 | 47.8 | 93.8 | 6.2 |
| Low Volume | 1564 | 48.4 | 38.4 | 86.6 | 13.2 |
| Community Clinics | 415 | 59.5 | 35.7 | 95.2 | 4.8 |
| TPCHD | 348 | 44.8 | 39.1 | 83.9 | 16.1 |

*Omits those with unknown immunization status

**Includes 39 family planning screens

## TABLE A-11: NUMBER OF SCREENS BY PROVIDER AND PROVIDER GROUP

| | Number of Project Screens (1) | Percent of Project Screens (2) | Percent of Provider Group (3) | Number of Initial Screens (4) |
|---|---|---|---|---|
| High Volume | 2404 | 42.7% | 100.0% | 1654 |
| Doctor A | 1114 | 19.8 | 46.3 | 799 |
| Doctor B | 458 | 8.1 | 19.1 | 228 |
| Doctor C | 407 | 7.2 | 16.9 | 270 |
| Doctor D | 425 | 7.5 | 17.7 | 357 |
| Low Volume | 2116 | 37.6% | 100.0% | 1434 |
| Doctor E | 427 | 7.6 | 20.2 | 262 |
| Doctor F | 374 | 6.6 | 17.7 | 259 |
| Doctor G | 321 | 5.7 | 15.2 | 200 |
| Doctor H | 231 | 4.1 | 10.9 | 151 |
| Doctor I | 166 | 2.9 | 7.8 | 105 |
| Doctor J | 128 | 2.3 | 6.0 | 85 |
| Doctor K | 116 | 2.1 | 5.5 | 80 |
| Others | 353 | 6.2 | 16.7 | 292 |
| Community Clinics | 569 | 10.1% | 100.0% | 453 |
| CMCS (Hilltop) | 486 | 8.6 | 85.4 | 374 |
| Eastside | 56 | 1.0 | 9.8 | 55 |
| Key Peninsula | 27 | 0.5 | 4.7 | 24 |
| TPCHD | 493 | 8.8% | 100.0% | 419 |
| Family Planning | 51 | 0.9% | 100.0% | 48 |
| TOTAL | 5633 | 100.0% | 100.0% | 4008 |

TABLE A-12: DISTRIBUTION OF PROJECT SCREENS BY MONTH

|  |  | Group |  | Sequence |  | Provider |  |  |  | Age |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | All Screens (1) | Con-trol (2) | Expt. (3) | Initial Screens (4) | Sub-sequent Screens (5) | High Volume (6) | Low Volume (7) | Comm. Clinics (8) | TPCHD (9) | Under 1 (10) | 1-6 (11) | 7-13 (12) | 14-20 (13) |
| June 1977 | 320 | 320 | 0 | 320 | 0 | 161 | 100 | 35 | 24 | 131 | 126 | 50 | 13 |
| July 1977 | 404 | 403 | 1 | 375 | 29 | 225 | 109 | 27 | 43 | 142 | 146 | 95 | 21 |
| August 1977 | 388 | 332 | 56 | 310 | 78 | 178 | 133 | 43 | 34 | 159 | 117 | 82 | 30 |
| September 1977 | 384 | 111 | 273 | 290 | 94 | 186 | 147 | 29 | 22 | 167 | 126 | 68 | 23 |
| October 1977 | 340 | 71 | 269 | 243 | 97 | 141 | 128 | 48 | 23 | 133 | 143 | 48 | 16 |
| November 1977 | 297 | 47 | 250 | 207 | 90 | 115 | 135 | 34 | 13 | 140 | 111 | 34 | 12 |
| December 1977 | 208 | 34 | 174 | 135 | 73 | 103 | 64 | 24 | 17 | 106 | 79 | 16 | 7 |
| January 1978 | 324 | 38 | 286 | 225 | 99 | 175 | 112 | 21 | 16 | 127 | 120 | 60 | 17 |
| February 1978 | 221 | 26 | 195 | 160 | 60 | 98 | 74 | 32 | 17 | 88 | 92 | 31 | 10 |
| March 1978 | 231 | 35 | 196 | 143 | 88 | 112 | 62 | 31 | 26 | 83 | 96 | 40 | 12 |
| April 1978 | 226 | 15 | 211 | 166 | 60 | 119 | 64 | 19 | 24 | 82 | 95 | 41 | 8 |
| May 1978 | 229 | 12 | 217 | 156 | 73 | 100 | 97 | 18 | 14 | 91 | 83 | 47 | 8 |
| June 1978 | 223 | 35 | 188 | 136 | 87 | 105 | 89 | 11 | 18 | 86 | 91 | 36 | 10 |
| July 1978 | 224 | 41 | 183 | 131 | 93 | 71 | 88 | 27 | 38 | 61 | 79 | 65 | 19 |
| August 1978 | 222 | 18 | 204 | 148 | 74 | 59 | 116 | 35 | 12 | 79 | 85 | 43 | 15 |
| September 1978 | 266 | 21 | 245 | 166 | 100 | 110 | 111 | 26 | 19 | 71 | 108 | 66 | 21 |
| October 1978 | 261 | 5 | 256 | 163 | 98 | 55 | 143 | 20 | 43 | 77 | 116 | 41 | 27 |
| November 1978 | 185 | 3 | 182 | 114 | 71 | 58 | 87 | 21 | 19 | 54 | 86 | 41 | 4 |
| December 1978 | 175 | 6 | 169 | 112 | 63 | 49 | 85 | 10 | 19 | 51 | 79 | 26 | 19 |
| January 1979 | 193 | 1 | 192 | 124 | 69 | 58 | 76 | 34 | 19 | 64 | 92 | 24 | 13 |
| February 1979 | 148 | 0 | 148 | 94 | 54 | 48 | 61 | 22 | 13 | 57 | 54 | 28 | 9 |
| March 1979 | 142 | 0 | 142 | 72 | 70 | 78 | 33 | 2 | 20 | 39 | 62 | 23 | 18 |
| Quarters (Monthly Means) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| June-August 1977 | 371 | 352 | 19 | 335 | 36 | 188 | 114 | 35 | 34 | 144 | 130 | 76 | 21 |
| September-November 1977 | 340 | 76 | 264 | 247 | 94 | 147 | 137 | 37 | 19 | 147 | 127 | 50 | 17 |
| December 1977-February 1978 | 251 | 33 | 218 | 173 | 78 | 125 | 83 | 26 | 17 | 107 | 97 | 36 | 11 |
| March-May 1978 | 229 | 21 | 208 | 155 | 74 | 110 | 74 | 23 | 21 | 85 | 91 | 43 | 9 |
| June-August 1978 | 223 | 31 | 192 | 138 | 85 | 78 | 98 | 24 | 23 | 75 | 85 | 48 | 15 |
| September-November 1978 | 237 | 10 | 228 | 148 | 90 | 74 | 114 | 22 | 27 | 67 | 103 | 49 | 17 |
| December 1978-February 1979 | 172 | 2 | 170 | 110 | 62 | 52 | 74 | 22 | 17 | 57 | 75 | 26 | 14 |

## TABLE A-13: DISTRIBUTION OF TOTAL AND INITIAL SCREENS BY AGE AT SCREENING AND PROVIDER TYPE

| Provider Type/ Screen Sequence | Total | | Under 1 | | 1-6 | | 7-13 | | 14-20 | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Total Screens** | No. | % | No. | % | No. | % | No. | % | No. | % |
| All Providers | 5633 | 100.0% | 2088 | 37.1% | 2187 | 38.8% | 1004 | 17.8% | 354 | 6.3% |
| High Volume | 2404 | 100.0 | 915 | 38.1 | 894 | 37.2 | 461 | 19.2 | 134 | 5.6 |
| Low Volume | 2116 | 100.0 | 952 | 45.0 | 753 | 35.6 | 329 | 15.5 | 82 | 3.9 |
| Community Clinics | 569 | 100.0 | 130 | 22.8 | 313 | 55.0 | 100 | 17.6 | 26 | 4.6 |
| TPCHD | 493 | 100.0 | 91 | 18.5 | 227 | 46.0 | 114 | 23.1 | 61 | 12.4 |
| **Initial Screens** | | | | | | | | | | |
| All Providers | 4008 | 100.0 | 1117 | 27.9 | 1677 | 41.8 | 902 | 22.5 | 312 | 7.8 |
| High Volume | 1654 | 100.0 | 468 | 28.3 | 676 | 40.9 | 399 | 24.1 | 111 | 6.7 |
| Low Volume | 1434 | 100.0 | 495 | 34.5 | 561 | 39.1 | 305 | 21.3 | 73 | 5.1 |
| Community Clinics | 453 | 100.0 | 88 | 19.4 | 248 | 54.7 | 94 | 20.8 | 23 | 5.1 |
| TPCHD | 419 | 100.0 | 66 | 15.8 | 192 | 45.8 | 104 | 24.8 | 57 | 13.6 |

## TABLE A-14: DISTRIBUTION OF SCREENS, BY PROVIDER TYPE AND ETHNICITY

PROVIDER TYPE

| | Total | High Volume | Low Volume | Community Clinics | TPCHD |
|---|---|---|---|---|---|
| N* | 5082 | 2027 | 2022 | 556 | 477 |
| White | 66.7% | 68.5% | 66.6% | 53.1% | 75.3% |
| Black | 23.5% | 22.4% | 26.2% | 26.3% | 13.6% |
| Asian | 3.2% | 2.5% | 1.1% | 13.3% | 3.1% |
| Native American | 1.5% | 1.2% | 1.3% | 2.2% | 2.3% |
| Mexican American | 1.3% | 1.2% | 1.2% | 2.2% | 0.6% |
| Other | 3.9% | 4.2% | 3.6% | 3.1% | 5.0% |
| | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

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*Excludes those with unknown ethnicity.

## TABLE A-15: PROPORTION OF ELIGIBLES SCREENED DURING 1978, BY AGE AND COMMUNITY SERVICE OFFICE

| Age* | Total |  |  | CSO = 27 |  |  | CSO = 48 |  |  | CSO = 49 |  |  | CSO = 51 |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | Elig. | Screened** | % | Elig. | Screened | % | Elig. | Screened | % | Elig. | Screened | % | Elig. | Screened | % |
| Under 1 | 2,104 | 292 | 13.9 | 677 | 107 | 15.8 | 607 | 75 | 12.4 | 501 | 98 | 19.6 | 319 | 12 | 3.8 |
| 1-2 | 1,085 | 820 | 75.6 | 360 | 288 | 80.0 | 307 | 217 | 70.7 | 269 | 236 | 87.7 | 149 | 79 | 53.0 |
| 3-5 | 3,050 | 516 | 16.9 | 1,050 | 217 | 20.7 | 873 | 123 | 14.1 | 686 | 138 | 20.1 | 441 | 38 | 8.6 |
| 6-9 | 3,718 | 454 | 12.2 | 1,401 | 197 | 14.1 | 948 | 90 | 9.5 | 882 | 143 | 16.2 | 487 | 24 | 4.9 |
| 10-13 | 2,961 | 281 | 9.5 | 1,164 | 145 | 12.5 | 661 | 59 | 8.9 | 721 | 64 | 8.9 | 415 | 13 | 3.1 |
| 14-17 | 2,771 | 179 | 6.5 | 1,165 | 90 | 7.7 | 575 | 39 | 6.8 | 652 | 40 | 6.1 | 379 | 10 | 2.6 |
| 18-19 | 815 | 21 | 2.6 | 296 | 9 | 3.0 | 216 | 4 | 1.9 | 211 | 7 | 3.3 | 92 | 1 | 1.1 |
| 20-21 | 993 | 8 | 0.8 | 318 | 3 | 0.9 | 322 | 5 | 1.6 | 229 | 0 | 0 | 124 | 0 | 0 |
| Total | 17,497 | 2,571 | 14.7 | 6,431 | 1,056 | 16.4 | 4,509 | 612 | 13.6 | 4,151 | 726 | 17.5 | 2,406 | 177 | 7.4 |
| (Adjusted) |  |  | (12.1) |  |  | (13.6) |  |  | (11.2) |  |  | (14.5) |  |  | (6.1) |

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*Age as of December 31, 1978.

**Unduplicated count.

## TABLE A-16: NUMBER OF SCREENS PER MONTH: PROJECT, PIERCE COUNTY TOTAL, STATE TOTAL

| 1977 | Project* | County** | State** |
|---|---|---|---|
| June | 320 | 612 | 2449 |
| July | 404 | 871 | 3054 |
| August | 388 | 1358 | 4896 |
| September | 384 | 1096 | 3872 |
| October | 340 | 1593 | 5879 |
| November | 297 | 880 | 3425 |
| December | 208 | 1152 | 4654 |
| 1978 | | | |
| January | 324 | 829 | 3066 |
| February | 221 | 881 | 3102 |
| March | 231 | 1216 | 4943 |
| April | 226 | 965 | 4020 |
| May | 229 | 988 | 3867 |
| June | 223 | 1050 | 4671 |
| July | 224 | 758 | 3365 |
| August | 222 | 746 | 3357 |
| September | 266 | 1101 | 4528 |
| October | 261 | 988 | 3999 |
| November | 185 | 986 | 3659 |
| December | 175 | 1338 | 4818 |
| 1979 | | | |
| January | 193 | 830 | 3506 |
| February | 148 | 882 | 2740 |
| March | 142 | 1578 | 6037 |

Project Screens As a Proportion of County and State Screens***

| | County | State |
|---|---|---|
| July-September 1977 | 29.1 | 8.0 |
| October-December 1977 | 29.5 | 7.6 |
| January-March 1978 | 25.3 | 6.4 |
| April-June 1978 | 24.2 | 5.7 |
| July-September 1978 | 25.1 | 5.9 |
| October-December 1978 | 19.7 | 5.2 |
| January-March 1979 | 18.8 | 3.9 |

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*Dates are those when screen occurred.

**Dates are when screens were reported to the state.

***Assumes one month lag between date of screen and date of billing.

TABLE A-17: PROJECT AND NON-PROJECT RESCREENS, BY VARIOUS CHARACTERISTICS

| | PROJECT | NON-PROJECT | PROPORTION NON-PROJECT |
|---|---|---|---|
| Total | 1625 | 1497 | 48.0% |
| Control | 603 | 444 | 42.4 |
| Experimental | 1022 | 1053 | 50.7 |
| Age | | | |
| Under 1 | 971 | 765 | 44.1 |
| 1-6 | 510 | 594 | 53.8 |
| 7-13 | 102 | 111 | 52.1 |
| 14-20 | 42 | 27 | 39.1 |
| Provider | | | |
| High Volume | 750 | 544 | 42.0 |
| Low Volume | 682 | 562 | 45.2 |
| Community Clinics | 116 | 144 | 55.4 |
| TPCHD | 74 | 11 | 12.9 |
| Non-Project | 0 | 236 | 100.0 |
| Individual Providers | | | |
| Doctor A | 315 | 93 | 22.8 |
| Doctor B | 230 | 93 | 28.8 |
| Doctor C | 137 | 105 | 43.4 |
| Doctor D | 68 | 253 | 78.8 |
| Doctor E | 165 | 124 | 42.9 |
| Doctor F | 115 | 52 | 31.1 |
| Doctor G | 121 | 38 | 23.9 |
| Doctor H | 80 | 137 | 63.1 |
| Quarter | | | |
| June-August, 1977 | 107 | 43 | 28.7 |
| September-November, 1977 | 281 | 112 | 28.5 |
| December, 1977-February, 1978 | 233 | 213 | 47.8 |
| March-May, 1978 | 221 | 224 | 50.3 |
| June-August, 1978 | 254 | 243 | 48.9 |
| September-November, 1978 | 269 | 255 | 48.7 |
| December, 1978-February, 1979 | 186 | 184 | 49.7 |

## TABLE A-18: PROPORTION OF SCREENS WITH PROBLEMS, AND MEAN NUMBER OF PROBLEMS PER SCREEN, BY VARIOUS CLIENT CHARACTERISTICS

| | | Proportion With Problems | | Problems per Screen | | |
|---|---|---|---|---|---|---|
| | N (1) | Excluding Immunization (2) | Including Immunization (3) | Excluding Immunization (4) | Including Immunization (5) | Mean Healthiness Rating (6) |
| Total | 5633 | 63.4% | 83.9% | 0.97 | 1.48 | 7.59 |
| Control Group | 1574 | 61.4 | 85.6 | 0.92 | 1.47 | 7.72 |
| Experimental Group | 4059 | 64.1 | 83.1 | 0.99 | 1.49 | 7.53 |
| Provider Group | | | | | | |
| High Volume | 2404 | 81.8 | 94.4 | 1.34 | 1.86 | 7.61 |
| Low Volume | 2116 | 50.9 | 78.0 | 0.71 | 1.24 | 7.63 |
| Community Clinics | 569 | 46.1 | 71.1 | 0.63 | 1.04 | 7.36 |
| TPCHD | 493 | 49.5 | 76.1 | 0.74 | 1.28 | 7.57 |
| Individual Providers | | | | | | |
| Doctor A | 1114 | 99.1 | 99.5 | 1.56 | 1.98 | 7.66 |
| Doctor B | 458 | 79.1 | 89.4 | 1.53 | 1.96 | 7.57 |
| Doctor C | 407 | 44.8 | 88.5 | 0.63 | 1.38 | 7.43 |
| Doctor D | 425 | 75.1 | 92.3 | 1.20 | 1.89 | 7.88 |
| Doctor E | 427 | 58.3 | 81.7 | 0.76 | 1.29 | 6.50 |
| Doctor F | 374 | 55.3 | 79.6 | 0.71 | 1.20 | 8.18 |
| Doctor G | 321 | 78.5 | 89.7 | 1.37 | 1.91 | 7.50 |
| Doctor H | 231 | 34.7 | 72.8 | 0.45 | 0.98 | 8.51 |
| Age Group | | | | | | |
| Under 1 | 2088 | 59.5 | 85.0 | 0.87 | 1.45 | 7.64 |
| 1-6 | 2187 | 64.4 | 85.4 | 1.00 | 1.54 | 7.45 |
| 7-13 | 1005 | 68.3 | 81.1 | 1.09 | 1.46 | 7.70 |
| 14-20 | 353 | 66.3 | 75.4 | 1.08 | 1.39 | 7.79 |
| Sequence | | | | | | |
| Initial | 4008 | 63.8 | 82.5 | 0.99 | 1.48 | 7.57 |
| Subsequent | 1625 | 62.5 | 87.4 | 0.92 | 1.50 | 7.63 |
| Group by Sequence | | | | | | |
| Control | | | | | | |
| - Initial | 971 | 62.3 | 84.4 | 0.94 | 1.47 | 7.66 |
| - Subsequent | 603 | 60.0 | 87.5 | 0.89 | 1.46 | 7.83 |
| Experimental | | | | | | |
| - Initial | 3037 | 64.2 | 81.8 | 1.01 | 1.59 | 7.53 |
| - Subsequent | 1022 | 63.9 | 87.3 | 0.94 | 1.52 | 7.51 |
| Providers by Sequence | | | | | | |
| High Volume | | | | | | |
| - Initial | 1654 | 83.1 | 94.3 | 1.37 | 1.81 | 7.55 |
| - Subsequent | 750 | 78.8 | 94.5 | 1.26 | 1.81 | 7.73 |
| Low Volume | | | | | | |
| - Initial | 1434 | 51.2 | 75.0 | 0.74 | 1.20 | 7.64 |
| - Subsequent | 682 | 50.2 | 84.4 | 0.66 | 1.31 | 7.59 |
| Community Clinics | | | | | | |
| - Initial | 453 | 45.2 | 69.3 | 0.63 | 1.03 | 7.40 |
| - Subsequent | 116 | 49.1 | 77.5 | 0.64 | 1.05 | 7.20 |
| TPCHD | | | | | | |
| - Initial | 419 | 52.6 | 78.9 | 0.80 | 1.35 | 7.52 |
| - Subsequent | 74 | 32.4 | 60.8 | 0.43 | 0.85 | 7.88 |
| Age Group by Sequence | | | | | | |
| Under 1 | | | | | | |
| - Initial | 1117 | 59.2 | 81.3 | 0.85 | 1.36 | 7.58 |
| - Subsequent | 971 | 59.8 | 89.3 | 0.89 | 1.55 | 7.70 |
| 1-6 | | | | | | |
| - Initial | 1677 | 64.3 | 85.1 | 1.00 | 1.56 | 7.46 |
| - Subsequent | 510 | 64.5 | 86.1 | 0.98 | 1.49 | 7.41 |
| 7-13 | | | | | | |
| - Initial | 903 | 67.4 | 81.0 | 1.10 | 1.48 | 7.68 |
| - Subsequent | 102 | 75.4 | 81.3 | 0.99 | 1.23 | 7.88 |
| 14-20 | | | | | | |
| - Initial | 311 | 65.9 | 75.2 | 1.10 | 1.43 | 7.73 |
| - Subsequent | 42 | 69.0 | 76.1 | 0.90 | 1.05 | 8.20 |

## TABLE A-19: PERCENT OF SCREENS REPORTING ABNORMAL CONDITIONS

| Step Conditions | TOTAL** | AGE GROUP | | | | PROVIDER | | | | INDIVIDUAL PROVIDER | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Under 1 | 1-6 | 7-13 | 14-20 | High Volume | Low Volume | Community Clinics | TPCHD | A | B | C | D | E | F | G | H |
| N | 5633 | 2088 | 2187 | 1005 | 353 | 2404 | 2116 | 569 | 493 | 1114 | 458 | 407 | 425 | 427 | 374 | 321 | 231 |
| 01 Ht/Wt/Age | 3.5 | 4.0 | 2.1 | 4.2 | 6.8 | 3.8 | 3.0 | 3.0 | 4.9 | 1.1 | 11.4 | 1.7 | 4.7 | 0.7 | 1.6 | 5.3 | 6.1 |
| 02 HCT/Hb | 5.6 | 5.7 | 7.5 | 2.4 | 3.4 | 9.1 | 2.3 | 6.5 | 2.6 | 2.1 | 8.5 | 15.2 | 22.1 | 1.2 | 1.3 | 3.1 | 1.3 |
| 03 Blood Pressure | 0.1 | 0.0 | 0.0 | 0.0 | 1.7 | 0.1 | 0.0 | 0.0 | 0.6 | 0.1 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 |
| 04 TB Skin Test | 0.1 | 0.0 | 0.0 | 0.4 | 0.6 | 0.0 | 0.1 | 0.4 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.0 |
| 05 Lead | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 06 Sickle Cell | 0.2 | 0.1 | 0.1 | 0.7 | 0.6 | 0.3 | 0.2 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 0.2 | 0.2 | 0.0 | 0.3 | 0.4 |
| 07 Urine Test | 0.9 | 0.1 | 0.9 | 1.7 | 2.5 | 0.8 | 1.1 | 0.2 | 0.8 | 0.4 | 1.3 | 1.0 | 1.2 | 0.7 | 1.6 | 3.1 | 0.4 |
| 08 Pap Test | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 |
| 09 PKU | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 |
| 10 Eyes | 2.1 | 2.1 | 2.1 | 2.1 | 3.4 | 1.5 | 2.7 | 1.4 | 3.2 | 1.1 | 2.8 | 1.7 | 1.2 | 2.1 | 3.5 | 3.4 | 0.9 |
| 11 Ears | 9.1 | 6.0 | 12.4 | 9.5 | 6.5 | 13.0 | 5.7 | 7.9 | 7.1 | 15.7 | 14.2 | 10.3 | 7.1 | 8.2 | 4.0 | 8.4 | 1.3 |
| 12 Nose & Throat | 21.0 | 14.4 | 22.9 | 28.9 | 25.8 | 34.4 | 12.5 | 12.7 | 3.2 | 53.3 | 22.3 | 6.6 | 24.7 | 7.5 | 18.7 | 29.3 | 3.5 |
| 13 Heart | 1.4 | 1.1 | 2.0 | 1.1 | 0.8 | 1.5 | 1.3 | 1.6 | 1.2 | 0.6 | 2.8 | 3.4 | 0.7 | 0.9 | 1.9 | 0.9 | 1.7 |
| 14 Lungs | 3.6 | 4.3 | 4.0 | 2.2 | 1.4 | 4.2 | 4.3 | 1.8 | 0.6 | 4.4 | 6.6 | 2.7 | 2.6 | 13.6 | 1.3 | 4.7 | 0.4 |
| 15 GI | 3.2 | 4.4 | 2.8 | 2.3 | 2.0 | 4.0 | 3.3 | 1.6 | 1.6 | 5.2 | 3.3 | 1.0 | 4.5 | 5.2 | 4.8 | 3.1 | 1.7 |
| 16 GU | 4.8 | 3.8 | 5.4 | 5.7 | 5.1 | 6.6 | 4.2 | 2.3 | 1.4 | 9.2 | 3.9 | 2.9 | 6.4 | 1.9 | 6.1 | 10.6 | 2.6 |
| 17 Skin | 17.8 | 25.1 | 13.9 | 12.5 | 13.6 | 25.1 | 14.7 | 10.0 | 5.7 | 32.9 | 34.1 | 2.9 | 16.2 | 21.8 | 10.7 | 21.5 | 11.3 |
| 18 Musculoskeletal | 6.8 | 8.4 | 5.5 | 6.8 | 5.4 | 8.4 | 6.4 | 3.7 | 5.1 | 6.2 | 17.2 | 1.7 | 11.1 | 4.9 | 7.0 | 17.4 | 5.6 |
| 19 Venereal Disease | 0.1 | 0.1 | 0.0 | 0.0 | 0.6 | 0.2 | 0.0 | 0.0 | 0.0 | 0.1 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 20 Contagious Disease | 0.5 | 0.4 | 0.6 | 0.2 | 0.6 | 0.2 | 0.8 | 0.2 | 0.6 | 0.1 | 0.7 | 0.0 | 0.2 | 1.6 | 0.0 | 1.2 | 0.9 |
| 21 Neurological | 1.1 | 0.5 | 0.9 | 2.7 | 2.3 | 1.4 | 1.0 | 0.7 | 0.8 | 1.1 | 1.1 | 0.7 | 3.3 | 0.9 | 1.9 | 1.2 | 0.4 |
| 22 Motor Development | 1.1 | 0.6 | 1.5 | 1.2 | 1.1 | 1.7 | 0.5 | 0.9 | 1.2 | 0.7 | 1.5 | 2.9 | 3.1 | 0.5 | 0.5 | 0.3 | 0.0 |
| 23 Speech/Language | 1.2 | 0.0 | 2.0 | 2.2 | 0.6 | 1.4 | 0.9 | 1.6 | 1.6 | 1.5 | 0.0 | 1.5 | 2.6 | 0.9 | 0.0 | 1.2 | 0.9 |
| 24 Social/Emotional | 2.9 | 0.8 | 2.9 | 5.9 | 6.8 | 3.0 | 2.0 | 1.9 | 7.7 | 1.3 | 7.4 | 2.2 | 3.1 | 1.6 | 1.3 | 5.6 | 0.4 |
| 25 Intellectual Development | 1.0 | 0.1 | 1.0 | 2.6 | 2.0 | 1.5 | 0.7 | 0.5 | 0.8 | 0.5 | 2.0 | 2.2 | 3.1 | 0.2 | 0.0 | 2.2 | 0.9 |
| 26 Dental | 2.9 | 0.0 | 3.6 | 6.8 | 5.1 | 2.2 | 1.8 | 1.4 | 11.4 | 3.1 | 0.7 | 1.2 | 2.4 | 0.9 | 2.4 | 4.7 | 0.9 |
| 27 Vision | 1.6 | 0.1 | 1.4 | 3.9 | 5.9 | 1.4 | 1.0 | 0.4 | 6.9 | 0.9 | 0.4 | 2.5 | 2.6 | 0.0 | 0.0 | 5.0 | 0.0 |
| 28 Hearing | 1.5 | 0.1 | 1.7 | 3.6 | 3.1 | 1.1 | 0.9 | 1.1 | 6.9 | 0.6 | 1.7 | 1.0 | 1.9 | 0.5 | 0.5 | 1.9 | 0.9 |
| 29 Nutritional | 2.0 | 2.9 | 1.8 | 1.3 | 0.6 | 2.8 | 0.9 | 3.7 | 1.2 | 4.6 | 3.1 | 0.2 | 0.5 | 0.5 | 0.0 | 1.2 | 5.6 |
| 30 Immunizations* | 52.8 | 58.5 | 55.5 | 39.1 | 34.7 | 54.1 | 54.2 | 40.5 | 55.7 | 44.4 | 43.6 | 74.9 | 69.8 | 54.5 | 51.0 | 55.4 | 53.9 |

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*Includes those brought current for age at screening.

**Includes 51 family planning screens

TABLE A-20: PERCENT OF SCREENS HAVING PROBLEMS IN VARIOUS ICDA GROUPS*

| | | AGE | | | | PROVIDER | | | | INDIVIDUAL PROVIDER | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total*** | Under 1 | 1-6 | 7-13 | 14-20 | High Volume | Low Volume | Community Clinics | TPCHD | A | B | C | D | E | F | G | H |
| N | 4059 | 1416 | 1631 | 739 | 273 | 1613 | 1614 | 415 | 366 | 805 | 236 | 252 | 320 | 344 | 339 | 283 | 63 |
| Infective Diseases and Parasites | 4.6 | 5.6 | 3.8 | 4.6 | 4.8 | 5.3 | 5.0 | 3.1 | 1.6 | 6.6 | 5.1 | 1.6 | 5.0 | 3.8 | 3.8 | 8.1 | 3.2 |
| Nutritional Deficiencies, Endocrine and Metabolic Disorders | 3.4 | 3.5 | 1.5 | 5.5 | 9.2 | 4.0 | 2.6 | 2.7 | 5.5 | 4.2 | 6.8 | 0.0 | 4.7 | 0.9 | 2.9 | 5.7 | 0.0 |
| Blood Diseases (and blood forming organs) | 5.4 | 5.3 | 7.1 | 2.8 | 2.9 | 8.7 | 2.5 | 6.7 | 2.2 | 2.0 | 7.6 | 1.5 | 21.6 | 1.2 | 1.5 | 3.5 | 1.6 |
| Mental Disorders | 5.1 | 0.6 | 6.5 | 10.6 | 4.4 | 5.5 | 4.7 | 3.9 | 6.8 | 4.5 | 9.3 | 2.0 | 7.8 | 2.3 | 5.6 | 10.2 | 4.8 |
| Nervous System and Sense Organs | 15.2 | 8.1 | 18.5 | 20.4 | 17.6 | 18.6 | 10.5 | 13.0 | 23.2 | 20.5 | 21.6 | 15.9 | 13.8 | 11.0 | 8.3 | 14.8 | 4.8 |
| Circulatory System | 1.4 | 1.0 | 1.5 | 1.1 | 2.9 | 1.1 | 1.4 | 1.9 | 1.6 | 0.2 | 2.1 | 3.6 | 0.6 | 0.6 | 2.1 | 0.7 | 0.0 |
| Respiratory System | 26.1 | 18.4 | 29.1 | 34.0 | 27.8 | 43.8 | 17.6 | 14.5 | 2.7 | 64.7 | 32.2 | 8.7 | 27.2 | 25.3 | 17.7 | 32.9 | 1.6 |
| Dental | 2.3 | 0.0 | 3.8 | 6.1 | 5.1 | 1.6 | 2.1 | 1.2 | 12.6 | 1.9 | 0.4 | 1.6 | 1.9 | 0.9 | 2.7 | 6.0 | 0.0 |
| Digestive, Other | 4.1 | 7.6 | 2.5 | 2.2 | 1.5 | 6.4 | 3.5 | 0.7 | 1.6 | 8.6 | 9.7 | 1.2 | 2.5 | 1.5 | 5.0 | 8.8 | 7.9 |
| Genito-Urinary System | 3.9 | 4.1 | 3.8 | 2.8 | 6.6 | 6.1 | 2.7 | 1.2 | 1.1 | 8.4 | 5.1 | 2.0 | 4.4 | 1.5 | 2.4 | 7.4 | 4.8 |
| Skin | 12.8 | 20.6 | 9.2 | 6.6 | 9.9 | 18.4 | 11.0 | 7.5 | 3.8 | 20.9 | 33.9 | 3.2 | 12.5 | 18.6 | 8.0 | 16.6 | 4.8 |
| Musculoskeletal | 1.8 | 1.7 | 1.5 | 2.6 | 2.6 | 3.0 | 0.7 | 1.7 | 1.9 | 2.6 | 0.0 | 0.8 | 8.1 | 1.2 | 0.6 | 0.7 | 0.0 |
| Birth Defects | 4.0 | 5.6 | 3.9 | 2.4 | 0.7 | 4.5 | 4.3 | 1.2 | 4.1 | 2.9 | 14.4 | 0.8 | 4.1 | 1.5 | 3.2 | 12.0 | 4.8 |
| Birth Problems (Perinatal) | 1.0 | 2.4 | 0.4 | 0.0 | 0.0 | 1.9 | 0.6 | 0.0 | 2.7 | 0.1 | 8.9 | 0.0 | 2.5 | 0.3 | 0.3 | 1.8 | 1.6 |
| Accidents, Poisoning, and Violence | 2.2 | 1.1 | 2.1 | 3.7 | 4.4 | 3.1 | 1.9 | 1.0 | 1.1 | 4.8 | 2.1 | 0.0 | 1.9 | 2.9 | 1.5 | 3.5 | 0.0 |
| Immunizations** | 9.5 | 9.0 | 12.4 | 6.0 | 4.0 | 6.0 | 12.7 | 4.8 | 15.3 | 5.1 | 2.1 | 6.3 | 10.9 | 23.5 | 11.5 | 11.0 | 7.9 |
| All other Conditions | 4.8 | 4.0 | 4.5 | 6.5 | 5.9 | 5.5 | 4.6 | 3.4 | 4.4 | 6.0 | 6.4 | 7.1 | 2.5 | 5.2 | 5.6 | 5.7 | 6.3 |

*See Exhibit for ICDA groupings. This table shows experimental screens only.
**Only immunizations not completed at screen are included
***Includes 45 family planning screens.

## TABLE A-21: PERCENTAGE OF CERTAIN SCREENS REPORTING ABNORMAL CONDITIONS, BY PROVIDER TYPE

| | All Providers | | High Volume | | Low Volume | | Community Clinics | | TPCHD | |
|---|---|---|---|---|---|---|---|---|---|---|
| | N | % | N | % | N | % | N | % | N | % |
| Blood Pressure (1) | 2421 | 0.2 | 1064 | 0.2 | 787 | 0.0 | 261 | 0.0 | 309 | 1.0 |
| TB Skin Test (2) | 3494 | 0.1 | 1489 | 0.1 | 1164 | 0.2 | 439 | 0.5 | 402 | 0.0 |
| Sickle Cell (3) | 788 | 1.5 | 296 | 2.4 | 319 | 1.6 | 115 | 0.0 | 58 | 0.0 |
| Pap Test (4) | 139 | 0.0 | 51 | 0.0 | 39 | 0.0 | 16 | 0.0 | 33 | 0.0 |
| PKU (5) | 1117 | 0.0 | 468 | 0.0 | 495 | 0.0 | 88 | 0.0 | 66 | 0.0 |
| Dental (1) | 2421 | 6.2 | 1064 | 4.3 | 787 | 4.3 | 261 | 3.1 | 309 | 18.9 |
| - Hygienist | 50 | 56.0 | 0 | - | 5 | 60.0 | 0 | - | 45 | 55.6 |
| - Other | 2371 | 4.9 | 1064 | 4.2 | 782 | 4.0 | 261 | 3.1 | 264 | 11.7 |
| Vision (6) | 2145 | 3.9 | 951 | 3.0 | 711 | 2.8 | 214 | 0.9 | 269 | 12.3 |

Notes

1. Age 3 and over.
2. Age 1 and over.
3. Blacks, initial screens only.
4. Girls 14 and over.
5. Infants, initial screen only.
6. Age 4 and over.

## TABLE A-22: PROBLEMS FOUND AT SCREEN BY WHETHER THEY WERE LIKELY TO HAVE CAUSED THE OFFICE VISIT AT WHICH SCREENING OCCURRED*

| | N | Cause for Exam | Found at Screen | Could be Either |
|---|---|---|---|---|
| Total | 4395 | 43.3 | 20.2 | 36.5 |
| Provider Group | | | | |
| High Volume | 2314 | 48.9 | 16.6 | 34.5 |
| Low Volume | 1429 | 42.1 | 17.8 | 40.1 |
| Community Clinics | 284 | 39.1 | 27.1 | 33.8 |
| TPCHD | 329 | 15.8 | 46.5 | 37.7 |
| Individual Providers | | | | |
| Doctor A | 1320 | 59.8 | 7.7 | 32.6 |
| Doctor B | 396 | 39.9 | 18.4 | 41.7 |
| Doctor C | 176 | 42.0 | 36.4 | 21.6 |
| Doctor D | 422 | 26.1 | 34.6 | 39.3 |
| Doctor E | 351 | 48.7 | 9.1 | 42.2 |
| Doctor F | 280 | 41.1 | 17.5 | 41.4 |
| Doctor G | 423 | 42.6 | 20.1 | 37.4 |
| Doctor H | 34 | 29.4 | 20.6 | 50.0 |
| Age Group | | | | |
| Under 1 | 1397 | 36.5 | 11.9 | 51.6 |
| 1-6 | 1826 | 43.9 | 21.7 | 34.4 |
| 7-13 | 871 | 50.3 | 27.2 | 22.5 |
| 14-20 | 301 | 50.5 | 29.2 | 20.3 |
| Sequence | | | | |
| Initial | 3349 | 43.0 | 23.2 | 33.8 |
| Subsequent | 1046 | 44.2 | 10.6 | 45.2 |
| Providers by Sequence | | | | |
| High Volume | | | | |
| Initial | 1747 | 49.4 | 18.7 | 31.9 |
| Subsequent | 567 | 47.3 | 10.2 | 42.5 |
| Low Volume | | | | |
| Initial | 1019 | 42.5 | 21.0 | 36.5 |
| Subsequent | 410 | 41.2 | 9.8 | 49.0 |
| Community Clinics | | | | |
| Initial | 237 | 37.1 | 29.5 | 33.3 |
| Subsequent | 47 | 48.9 | 14.9 | 36.2 |
| TPCHD | | | | |
| Initial | 308 | 16.2 | 47.7 | 36.0 |
| Subsequent | 21 | 9.5 | 28.6 | 61.9 |
| Age Group by Sequence | | | | |
| Under 1 | | | | |
| Initial | 767 | 34.8 | 14.6 | 50.6 |
| Subsequent | 630 | 38.6 | 8.6 | 52.9 |
| 1-6 | | | | |
| Initial | 1486 | 42.9 | 23.6 | 33.5 |
| Subsequent | 340 | 48.2 | 13.5 | 38.2 |
| 7-13 | | | | |
| Initial | 815 | 48.8 | 28.0 | 23.2 |
| Subsequent | 56 | 71.4 | 16.1 | 12.5 |
| 14-20 | | | | |
| Initial | 281 | 48.8 | 30.6 | 20.6 |
| Subsequent | 20 | 75.0 | 10.0 | 15.0 |

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*Per post-hoc judgement of project staff. See text. Table includes experimental screens only.

## TABLE A-23: MEAN NUMBER OF PROBLEMS PER SCREEN, BY WHETHER OR NOT PROBLEM MOTIVATED OFFICE VISIT*

| | N | All Problems | Excluding Problems that Definitely Motivated Visit | Excluding Problems that Definitely or Possibly Motivated Visit |
|---|---|---|---|---|
| Total | 4059 | 0.99 | 0.52 | 0.22 |
| Provider Group | | | | |
| High Volume | 1613 | 1.37 | 0.67 | 0.24 |
| Low Volume | 1614 | 0.76 | 0.39 | 0.16 |
| Community Clinics | 415 | 0.64 | 0.37 | 0.19 |
| TPCHD | 366 | 0.75 | 0.60 | 0.42 |
| Individual Providers | | | | |
| Doctor A | 805 | 1.59 | 0.61 | 0.13 |
| Doctor B | 236 | 1.66 | 0.99 | 0.31 |
| Doctor C | 252 | 0.63 | 0.34 | 0.25 |
| Doctor D | 320 | 1.21 | 0.87 | 0.46 |
| Doctor E | 344 | 0.78 | 0.29 | 0.09 |
| Doctor F | 339 | 0.71 | 0.37 | 0.14 |
| Doctor G | 283 | 1.39 | 0.75 | 0.30 |
| Doctor H | 63 | 0.46 | 0.30 | 0.11 |
| Age Group | | | | |
| Under 1 | 1416 | 0.90 | 0.54 | 0.12 |
| 1-6 | 1631 | 1.00 | 0.50 | 0.24 |
| 7-13 | 739 | 1.12 | 0.53 | 0.32 |
| 14-20 | 273 | 1.06 | 0.51 | 0.32 |
| Sequence | | | | |
| Initial | 3037 | 1.01 | 0.53 | 0.26 |
| Subsequent | 1022 | 0.93 | 0.48 | 0.11 |
| Providers by Sequence | | | | |
| High Volume | | | | |
| - Initial | 1184 | 1.41 | 0.68 | 0.28 |
| - Subsequent | 429 | 1.28 | 0.66 | 0.14 |
| Low Volume | | | | |
| - Initial | 1144 | 0.77 | 0.39 | 0.19 |
| - Subsequent | 470 | 0.73 | 0.37 | 0.09 |
| Community Clinics | | | | |
| - Initial | 340 | 0.64 | 0.38 | 0.21 |
| - Subsequent | 75 | 0.61 | 0.31 | 0.09 |
| TPCHD | | | | |
| - Initial | 321 | 0.76 | 0.65 | 0.43 |
| - Subsequent | 45 | 0.33 | 0.29 | 0.13 |
| Age Group by Sequence | | | | |
| Under 1 | | | | |
| - Initial | 795 | 0.87 | 0.53 | 0.14 |
| - Subsequent | 621 | 0.93 | 0.54 | 0.09 |
| 1-6 | | | | |
| - Initial | 1310 | 1.01 | 0.52 | 0.27 |
| - Subsequent | 321 | 0.94 | 0.43 | 0.14 |
| 7-13 | | | | |
| - Initial | 682 | 1.13 | 0.55 | 0.33 |
| - Subsequent | 57 | 0.95 | 0.25 | 0.16 |
| 14-20 | | | | |
| - Initial | 250 | 1.08 | 0.53 | 0.34 |
| - Subsequent | 23 | 0.87 | 0.22 | 0.09 |

*Experimental screens; excludes immunizations.

TABLE A-24 : PERCENT OF SCREENS HAVING PROBLEMS ADJUSTED BY REMOVAL OF THOSE THAT CLEARLY CAUSED THE OFFICE VISIT TO OCCUR

| | | AGE | | | | PROVIDER | | | | INDIVIDUAL PROVIDER | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total | Under 1 | 1-6 | 7-13 | 14-20 | High Volume | Low Volume | Community Clinics | TPCHD | A | B | C | D | E | F | G | H |
| N | 4059 | 1416 | 1631 | 739 | 273 | 1613 | 1614 | 415 | 366 | 805 | 236 | 252 | 320 | 344 | 339 | 283 | 63 |
| Infective Diseases and Parasites | 0.3% | 0.5% | 0.1% | 0.4% | 0.0% | 0.2% | 0.4% | 0.0% | 0.3% | 0.0% | 1.7% | 0.0% | 0.0% | 0.3% | 0.3% | 0.7% | 0.0% |
| Nutritional Deficiencies, Endocrine and Metabolic Disorders | 3.4 | 3.5 | 1.5 | 5.5 | 8.8 | 4.0 | 2.5 | 2.7 | 5.2 | 4.2 | 6.8 | 0.0 | 4.7 | 0.9 | 2.9 | 5.7 | 0.0 |
| Blood Diseases (and blood forming organs) | 5.4 | 5.3 | 7.1 | 2.8 | 2.9 | 8.7 | 2.5 | 6.7 | 2.2 | 2.0 | 7.6 | 15.1 | 21.6 | 1.2 | 1.5 | 3.5 | 1.6 |
| Mental Disorders | 2.1 | 0.3 | 2.8 | 4.1 | 2.9 | 2.6 | 1.6 | 2.2 | 2.7 | 1.9 | 4.7 | 0.8 | 4.4 | 0.9 | 0.9 | 3.9 | 4.8 |
| Nervous System and Sense Organs | 6.6 | 2.5 | 7.8 | 11.0 | 9.5 | 5.3 | 5.1 | 6.3 | 19.4 | 3.0 | 12.2 | 2.8 | 7.8 | 2.3 | 2.9 | 9.5 | 1.6 |
| Circulatory System | 1.3 | 1.0 | 1.5 | 0.9 | 2.6 | 1.1 | 1.2 | 1.9 | 1.6 | 0.2 | 2.1 | 3.6 | 0.6 | 0.6 | 2.1 | 0.4 | 0.0 |
| Respiratory System | 6.3 | 3.7 | 7.8 | 8.7 | 4.4 | 10.7 | 3.5 | 5.1 | 1.9 | 13.8 | 1.7 | 2.0 | 16.2 | 2.3 | 6.2 | 3.9 | 1.6 |
| Dental | 3.0 | 0.0 | 3.8 | 6.1 | 5.1 | 1.6 | 2.1 | 1.2 | 12.6 | 1.9 | 0.4 | 1.6 | 1.9 | 0.9 | 2.7 | 6.0 | 0.0 |
| Digestive, Other | 3.9 | 7.4 | 2.2 | 2.0 | 1.1 | 6.0 | 3.3 | 0.5 | 1.6 | 8.0 | 9.7 | 1.2 | 2.2 | 1.5 | 5.0 | 8.8 | 6.3 |
| Genito-Urinary System | 2.2 | 2.5 | 2.1 | 1.4 | 3.7 | 3.3 | 1.5 | 0.5 | 0.8 | 5.0 | 2.1 | 0.4 | 2.5 | 0.0 | 0.9 | 1.1 | 3.2 |
| Skin | 9.9 | 17.9 | 7.0 | 3.2 | 3.7 | 14.5 | 8.2 | 6.3 | 2.7 | 14.3 | 32.6 | 2.0 | 11.6 | 14.2 | 5.9 | 12.7 | 3.2 |
| Musculoskeletal | 1.7 | 1.6 | 1.5 | 2.0 | 1.8 | 2.7 | 0.7 | 1.7 | 1.4 | 2.0 | 0.0 | 0.8 | 8.1 | 1.2 | 0.6 | 0.7 | 0.0 |
| Birth Defects | 3.6 | 5.2 | 3.4 | 2.3 | 0.4 | 4.2 | 3.8 | 1.2 | 4.1 | 2.6 | 14.4 | 0.4 | 3.4 | 1.5 | 3.2 | 12.0 | 3.2 |
| Birth Problems (Perinatal) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Accidents, Poisoning, and Violence | 0.2 | 0.1 | 0.2 | 0.4 | 0.0 | 0.2 | 0.1 | 0.2 | 0.5 | 0.2 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Immunizations | 9.5 | 9.0 | 12.4 | 6.0 | 4.0 | 6.0 | 12.7 | 4.8 | 15.3 | 5.1 | 2.1 | 6.3 | 10.9 | 23.5 | 11.5 | 11.0 | 7.9 |
| All other Conditions | 1.9 | 2.0 | 1.7 | 1.8 | 3.7 | 2.1 | 1.9 | 0.5 | 3.3 | 1.9 | 2.1 | 3.6 | 1.6 | 1.2 | 2.1 | 2.5 | 4.8 |

## TABLE A-25: PROBLEM DISPOSITION

| | CONTROL GROUP | | | | | | EXTENDED MONITORING | | | | | | LIMITED MONITORING | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N (1) | Total Treated At Screen (2) | Treated Only at Screen (3) | Treated and Referred (4) | Total Referred (5) | Referred Only (6) | N (7) | Total Treated At Screen (8) | Treated Only at Screen (9) | Treated and Referred (10) | Total Referred (11) | Referred Only (12) | N (13) | Total Treated At Screen (14) | Treated Only at Screen (15) | Treated and Referred (16) | Total Referred (17) | Referred Only (18) |
| **Total** | 1,421* | 68.9% | 51.7% | 17.2% | 48.3% | 31.1% | 3,322** | 76.9% | 37.9% | 39.0% | 62.1% | 23.1% | 1,073** | 78.6% | 52.7% | 25.9% | 47.2% | 21.3% |
| **Age** | | | | | | | | | | | | | | | | | | |
| Under 1 | 579 | 76.2 | 52.0 | 24.2 | 48.0 | 23.8 | 1,157 | 84.5 | 37.2 | 47.3 | 62.9 | 15.6 | 240 | 86.3 | 54.2 | 32.1 | 45.9 | 13.8 |
| 1-6 | 541 | 65.4 | 49.9 | 15.5 | 50.1 | 34.6 | 1,289 | 73.5 | 35.5 | 38.0 | 64.5 | 26.5 | 537 | 74.9 | 49.9 | 25.0 | 50.1 | 25.1 |
| 7-13 | 229 | 61.1 | 52.4 | 8.7 | 47.6 | 38.9 | 643 | 72.4 | 40.4 | 32.0 | 59.5 | 27.5 | 228 | 82.0 | 57.9 | 24.1 | 42.1 | 18.0 |
| 14-20 | 72 | 61.1 | 59.7 | 1.4 | 40.3 | 38.9 | 233 | 70.8 | 47.6 | 23.2 | 52.4 | 29.2 | 68 | 70.5 | 52.9 | 17.6 | 47.0 | 29.4 |
| **Provider** | | | | | | | | | | | | | | | | | | |
| High Volume | 921 | 76.7 | 56.4 | 20.3 | 43.6 | 23.3 | 1,835 | 88.5 | 42.1 | 46.4 | 57.9 | 11.5 | 479 | 94.8 | 66.2 | 28.6 | 33.8 | 5.2 |
| Low Volume | 246 | 63.0 | 50.0 | 13.0 | 50.0 | 37.0 | 1,006 | 70.8 | 39.5 | 31.3 | 60.5 | 29.2 | 423 | 77.1 | 49.9 | 27.2 | 50.1 | 22.9 |
| Community Clinics | 158 | 63.9 | 51.3 | 12.7 | 48.7 | 36.1 | 226 | 76.1 | 25.7 | 50.4 | 74.3 | 23.9 | 58 | 72.4 | 34.5 | 37.9 | 65.5 | 27.6 |
| TPCHD | 91 | 15.4 | 9.9 | 5.5 | 90.1 | 84.6 | 216 | 16.7 | 10.2 | 6.5 | 89.8 | 83.3 | 113 | 19.4 | 15.9 | 3.5 | 84.0 | 80.5 |
| **Individual Provider** | | | | | | | | | | | | | | | | | | |
| Doctor A | | | | | | | 914 | 92.1 | 57.1 | 35.0 | 42.9 | 7.9 | 406 | 98.5 | 68.7 | 29.8 | 31.3 | 1.5 |
| Doctor B | | | | | | | 396 | 90.4 | 13.4 | 77.0 | 86.6 | 9.6 | 0 | - | - | - | - | - |
| Doctor C | | | | | | | 175 | 76.5 | 17.1 | 59.4 | 82.8 | 23.4 | 1 | - | - | - | - | - |
| Doctor D | | | | | | | 350 | 82.8 | 47.7 | 35.1 | 52.2 | 17.1 | 72 | 75.0 | 52.8 | 22.2 | 47.2 | 25.0 |
| Doctor E | | | | | | | 214 | 67.7 | 46.7 | 21.0 | 53.2 | 32.2 | 137 | 83.2 | 70.1 | 13.1 | 29.9 | 16.8 |
| Doctor F | | | | | | | 169 | 69.2 | 21.3 | 47.9 | 78.7 | 30.8 | 111 | 73.8 | 32.4 | 41.4 | 67.5 | 26.1 |
| Doctor G | | | | | | | 299 | 75.6 | 51.5 | 24.1 | 48.5 | 24.4 | 124 | 81.4 | 51.6 | 29.8 | 48.3 | 18.5 |
| **ICDA** | | | | | | | | | | | | | | | | | | |
| Infective Diseases and Parasites | 66 | 89.4 | 78.8 | 10.6 | 21.2 | 10.6 | 152 | 92.1 | 57.9 | 34.2 | 42.1 | 7.9 | 36 | 94.5 | 77.8 | 16.7 | 22.3 | 5.6 |
| Nutritional Deficiencies, Endocrine and Metabolic Disorders | 91 | 84.6 | 69.2 | 15.4 | 30.8 | 15.4 | 111 | 79.3 | 27.0 | 52.3 | 73.0 | 20.7 | 28 | 85.7 | 50.0 | 35.7 | 50.0 | 14.3 |
| Blood Diseases (and blood forming organs) | 94 | 91.5 | 50.0 | 41.5 | 50.0 | 8.5 | 180 | 97.2 | 19.4 | 77.8 | 80.6 | 2.8 | 39 | 89.7 | 35.9 | 53.8 | 64.1 | 10.3 |
| Mental Disorders | 74 | 28.4 | 16.2 | 12.2 | 83.8 | 71.6 | 157 | 68.8 | 25.5 | 43.3 | 74.5 | 31.2 | 48 | 60.4 | 37.5 | 22.9 | 62.5 | 39.6 |
| Nervous System and Sense Organs | 141 | 73.0 | 33.0 | 39.7 | 66.7 | 27.0 | 475 | 75.1 | 28.6 | 46.5 | 71.3 | 24.8 | 140 | 75.0 | 33.6 | 41.4 | 66.4 | 25.0 |
| Circulatory System | | | | | | | 48 | 75.0 | 29.2 | 45.8 | 70.8 | 25.0 | 7 | 57.1 | 57.1 | 0.0 | 42.9 | 42.9 |
| Respiratory System | 239 | 96.7 | 81.2 | 15.5 | 18.8 | 3.3 | 743 | 97.2 | 60.7 | 36.5 | 39.3 | 2.8 | 318 | 98.1 | 69.5 | 28.6 | 30.5 | 1.9 |
| Dental | | | | | | | 77 | 5.2 | 5.2 | 0.0 | 94.8 | 94.8 | 44 | 18.1 | 13.6 | 4.5 | 86.3 | 81.8 |
| Digestive, Other*** | 94 | 42.6 | 29.8 | 12.8 | 70.2 | 57.4 | 129 | 86.0 | 48.8 | 37.2 | 51.2 | 14.0 | 39 | 92.3 | 59.0 | 33.3 | 41.0 | 7.7 |
| Genito-Urinary System | 27 | 77.8 | 63.0 | 14.8 | 37.0 | 22.2 | 136 | 87.5 | 47.8 | 39.7 | 52.2 | 12.5 | 23 | 91.3 | 65.2 | 26.1 | 34.8 | 8.7 |
| Skin | 167 | 98.2 | 78.4 | 19.8 | 21.6 | 1.8 | 393 | 96.9 | 54.2 | 42.7 | 45.8 | 3.1 | 125 | 100.0 | 78.4 | 21.6 | 21.6 | 0.0 |
| Musculoskeletal | 37 | 62.2 | 56.8 | 5.4 | 43.2 | 37.8 | 57 | 71.9 | 38.6 | 33.3 | 61.4 | 28.1 | 18 | 77.8 | 38.9 | 38.9 | 61.1 | 22.2 |
| Birth Defects | 54 | 44.4 | 22.2 | 22.2 | 77.7 | 55.5 | 122 | 58.2 | 18.9 | 39.3 | 81.1 | 41.8 | 40 | 60.0 | 40.0 | 20.0 | 60.0 | 40.0 |
| Birth Problems (Perinatal) | | | | | | - | 37 | 91.9 | 18.9 | 73.0 | 81.1 | 8.1 | 3 | 66.7 | 0.0 | 66.7 | 100.0 | 33.3 |
| Accidents, Poisoning, and Violence | 41 | 85.3 | 70.7 | 14.6 | 29.2 | 14.6 | 61 | 81.9 | 55.7 | 26.2 | 44.2 | 18.0 | 28 | 96.4 | 75.0 | 21.4 | 25.0 | 3.6 |
| All other conditions | 67 | 47.7 | 34.3 | 13.4 | 65.6 | 52.2 | 140 | 74.3 | 23.6 | 50.7 | 76.4 | 25.7 | 55 | 78.2 | 60.0 | 18.2 | 40.0 | 21.8 |
| **ICDA Status** | | | | | | | | | | | | | | | | | | |
| Cause for Exam | | | | | | | 1,382 | 92.1 | 50.4 | 41.7 | 49.6 | 7.9 | 520 | 95.0 | 65.6 | 29.4 | 34.4 | 5.0 |
| Found at Screen | | | | | | | 689 | 64.9 | 22.5 | 42.4 | 77.5 | 35.1 | 198 | 53.0 | 31.3 | 21.7 | 68.7 | 47.0 |
| Could be either | | | | | | | 1,251 | 66.8 | 32.5 | 34.3 | 67.5 | 33.2 | 355 | 69.0 | 45.9 | 23.1 | 54.1 | 31.0 |

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*Included only control screens received by late May 1978. Data based on screening sheets.
**Data based on medical referral sheets.
***For control group, dental and other digestive problems are combined.

TABLE A-26: TO WHOM REFERRED*

| | N | Self | REFERRED TO: Total | Medical Doctor | Dentist | Ophthal-mologist | Group/ Foster Home | Special-ist doctor | Specia ist Clinic |
|---|---|---|---|---|---|---|---|---|---|
| Control Group Total | 466 | 66.7% | 33.3% | 3.4% | 7.1% | 2.8% | 6.9% | 7.7% | 5.2% |
| Experimental Group Total | 2564 | 77.7 | 22.3 | 3.8 | 4.3 | 2.8 | 2.2 | 5.9 | 3.4 |
| Age | | | | | | | | | |
| Under 1 | 834 | 90.3 | 9.7 | 3.0 | 0.0 | 0.5 | 0.2 | 5.4 | 0.6 |
| 1-6 | 1099 | 77.7 | 22.3 | 4.4 | 5.1 | 2.2 | 1.4 | 5.4 | 3.9 |
| 7-13 | 479 | 64.3 | 35.7 | 3.1 | 8.4 | 6.9 | 4.0 | 7.5 | 5.8 |
| 14-20 | 152 | 50.0 | 50.0 | 5.9 | 9.9 | 7.9 | 13.2 | 6.6 | 6.6 |
| Provider | | | | | | | | | |
| High Volume | 1220 | 90.6 | 9.4 | 0.2 | 1.6 | 1.4 | 0.8 | 4.4 | 1.0 |
| Low Volume | 820 | 79.8 | 20.2 | 0.6 | 3.5 | 3.3 | 1.5 | 7.7 | 3.7 |
| Community Clinics | 206 | 69.9 | 30.1 | 11.2 | 2.4 | 1.9 | 1.9 | 8.3 | 4.4 |
| TPCHD | 289 | 29.1 | 70.9 | 22.5 | 16.3 | 7.3 | 7.6 | 5.2 | 12.1 |
| Individual Provider | | | | | | | | | |
| Doctor A | 518 | 93.2 | 6.8 | 0.0 | 2.1 | 0.6 | 0.8 | 2.5 | 0.8 |
| Doctor B | 340 | 94.1 | 5.9 | 0.0 | 0.0 | 0.6 | 0.3 | 4.7 | 0.3 |
| Doctor C | 146 | 89.0 | 10.9 | 0.7 | 2.7 | 2.7 | 0.0 | 4.8 | 0.0 |
| Doctor D | 216 | 79.6 | 20.3 | 0.5 | 2.3 | 3.7 | 2.3 | 8.3 | 3.2 |
| Doctor E | 155 | 90.3 | 9.7 | 0.0 | 1.3 | 0.0 | 0.0 | 3.9 | 4.5 |
| Doctor F | 207 | 87.0 | 13.0 | 0.0 | 4.3 | 1.9 | 0.5 | 5.3 | 1.0 |
| Doctor G | 205 | 71.2 | 28.9 | 0.0 | 5.4 | 6.3 | 2.0 | 9.3 | 5.9 |
| ICDA | | | | | | | | | |
| Infective Diseases and Parasites | 72 | 88.9 | 11.1 | 5.6 | 0.0 | 0.0 | 0.0 | 1.4 | 4.2 |
| Nutritional Deficiencies, Endocrine and Metabolic Disorders | 95 | 78.9 | 21.1 | 4.2 | 0.0 | 0.0 | 10.5 | 0.0 | 6.3 |
| Blood Diseases and blood forming organs | 170 | 95.3 | 4.7 | 4.1 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 |
| Mental Disorders | 147 | 54.4 | 45.6 | 6.8 | 0.0 | 0.0 | 19.0 | 4.1 | 15.6 |
| Nervous system and Sense Organs | 431 | 67.5 | 32.5 | 4.4 | 0.2 | 14.8 | 0.9 | 7.4 | 4.6 |
| Circulatory System | 37 | 81.1 | 18.9 | 10.8 | 0.0 | 0.0 | 0.0 | 5.4 | 2.7 |
| Respiratory System | 389 | 92.5 | 7.5 | 3.6 | 0.0 | 0.0 | 0.0 | 3.6 | 0.3 |
| Dental | 110 | 1.8 | 98.2 | 0.0 | 98.2 | 0.0 | 0.0 | 0.0 | 0.0 |
| Digestive, Other | 82 | 78.0 | 22.0 | 4.9 | 0.0 | 0.0 | 1.2 | 15.9 | 0.0 |
| Genito-Urinary System | 79 | 77.2 | 22.6 | 1.3 | 0.0 | 0.0 | 0.0 | 20.3 | 1.3 |
| Skin | 206 | 94.7 | 5.3 | 3.9 | 0.0 | 0.0 | 0.5 | 0.5 | 0.5 |
| Musculoskeletal | 46 | 60.9 | 39.1 | 0.0 | 0.0 | 0.0 | 0.0 | 19.6 | 19.6 |
| Birth Defects | 121 | 49.6 | 50.4 | 3.3 | 0.8 | 0.8 | 0.0 | 34.7 | 10.7 |
| Birth Problems (Perinatal | 33 | 93.9 | 6.1 | 6.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Accidents, Poisoning and Violence | 34 | 61.8 | 38.2 | 5.9 | 2.9 | 14.7 | 5.9 | 5.9 | 2.9 |
| Immunizations | 384 | 96.6 | 3.4 | 0.3 | 0.0 | 0.0 | 2.1 | 0.3 | 0.8 |
| All other conditions | 128 | 75.0 | 25.0 | 10.2 | 0.0 | 2.3 | 0.8 | 8.6 | 3.1 |
| ICDA Status | | | | | | | | | |
| Cause for Exam | 864 | 85.4 | 14.6 | 3.8 | 0.3 | 0.6 | 2.1 | 5.2 | 2.5 |
| Found at Screen | 667 | 55.9 | 44.1 | 4.3 | 16.2 | 9.9 | 2.5 | 4.9 | 6.1 |
| Could be Either | 1033 | 85.2 | 14.8 | 3.4 | 0.0 | 0.2 | 2.0 | 7.0 | 2.2 |

*Experimental problems only, except where indicated

## TABLE A-27: DEGREE OF CASE MONITORING REQUIRED FOR REFERRED PROBLEMS[1]

| | | LCM SAME AS ECM | | | | | LCM DIFFERENT | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | N (1) | Total (2) | Only One Visit Needed[2] (3) | Unable to Contact[3] (4) | Treatment not Available[4] (5) | Refused[5] (6) | Total (7) | Missed First Appointment (8) | Additional Visits Required[6] (9) | Number of Treatments Required 1 (10) | 2+ (11) |
| Total | 2482 | 63.7 | 46.4 | 13.4 | 0.4 | 3.5 | 36.3 | 6.8 | 29.5 | 16.5 | 83.5 |
| Actually Received ECM | 2012 | 66.8 | 47.4 | 14.9 | 0.3 | 4.2 | 33.2 | 3.8 | 29.4 | 15.9 | 84.1 |
| Actually Received LCM | 470 | 50.7 | 41.9 | 7.0 | 0.9 | 0.9 | 49.4 | 19.6 | 29.8 | 19.0 | 81.0 |
| Age | | | | | | | | | | | |
| Under 1 | 811 | 63.2 | 46.6 | 12.8 | 0.6 | 3.2 | 36.8 | 4.6 | 32.2 | 9.9 | 90.1 |
| 1-6 | 1066 | 64.2 | 44.6 | 15.6 | 0.4 | 3.6 | 35.9 | 9.0 | 26.9 | 18.6 | 81.4 |
| 7-13 | 472 | 61.8 | 48.9 | 8.7 | 0.2 | 4.0 | 38.1 | 5.9 | 32.2 | 20.2 | 79.8 |
| 14-20 | 133 | 70.7 | 50.4 | 16.5 | 0.0 | 3.8 | 29.4 | 5.3 | 24.1 | 27.5 | 72.5 |
| Provider | | | | | | | | | | | |
| High Volume | 1204 | 68.2 | 49.5 | 14.7 | 0.5 | 3.5 | 31.8 | 4.0 | 27.8 | 7.6 | 92.4 |
| Low Volume | 789 | 59.8 | 45.8 | 10.4 | 0.4 | 3.2 | 40.3 | 8.1 | 32.2 | 22.1 | 77.9 |
| Community Clinics | 199 | 65.3 | 50.3 | 9.0 | 0.5 | 5.5 | 34.6 | 7.5 | 27.1 | 13.4 | 86.6 |
| TPCHD | 277 | 54.1 | 33.2 | 17.3 | 0.0 | 3.6 | 45.8 | 14.4 | 31.4 | 46.4 | 53.6 |
| Individual Provider | | | | | | | | | | | |
| Doctor A | 505 | 72.9 | 54.7 | 15.6 | 0.4 | 2.2 | 27.1 | 5.5 | 21.6 | 6.6 | 93.4 |
| Doctor B | 342 | 73.4 | 58.5 | 11.7 | 0.6 | 2.6 | 26.6 | 1.2 | 25.4 | 4.8 | 95.2 |
| Doctor C | 145 | 63.4 | 35.9 | 23.4 | 0.0 | 4.1 | 36.6 | 2.8 | 33.8 | 8.7 | 91.3 |
| Doctor D | 212 | 51.8 | 32.1 | 11.3 | 0.9 | 7.5 | 48.2 | 5.7 | 42.5 | 14.3 | 85.7 |
| Doctor E | 148 | 57.4 | 43.2 | 8.8 | 0.0 | 5.4 | 42.6 | 11.5 | 31.1 | 29.2 | 70.8 |
| Doctor F | 202 | 63.9 | 52.0 | 10.4 | 0.0 | 1.5 | 36.1 | 7.9 | 28.2 | 19.6 | 80.7 |
| Doctor G | 193 | 60.5 | 49.7 | 6.7 | 1.0 | 3.1 | 39.4 | 8.8 | 30.6 | 19.9 | 80.1 |
| To Whom Referred | | | | | | | | | | | |
| Self | 1942 | 68.2 | 51.2 | 13.4 | 0.4 | 3.2 | 31.7 | 6.8 | 24.9 | 11.6 | 88.4 |
| Other | 537 | 47.1 | 29.1 | 12.8 | 0.4 | 4.8 | 52.9 | 6.7 | 46.2 | 35.1 | 64.9 |
| ICDA | | | | | | | | | | | |
| Infective Diseases and Parasites | 70 | 71.4 | 64.3 | 5.7 | 0.0 | 1.4 | 28.5 | 1.4 | 27.1 | 12.5 | 87.5 |
| Nutritional Deficiencies Endocrine and Metabolic Disorders | 91 | 58.3 | 33.0 | 17.6 | 0.0 | 7.7 | 41.8 | 3.3 | 38.5 | 11.9 | 88.1 |
| Blood Diseases (and blood forming organs) | 167 | 58.1 | 34.1 | 17.4 | 1.2 | 5.4 | 41.9 | 5.4 | 36.5 | 1.6 | 98.4 |
| Mental Disorders | 144 | 46.6 | 29.2 | 13.9 | 0.7 | 2.8 | 53.5 | 6.3 | 47.2 | 7.1 | 92.9 |
| Nervous System and Sense Organs | 416 | 66.3 | 50.0 | 13.9 | 0.0 | 2.4 | 33.6 | 6.0 | 27.6 | 18.5 | 81.5 |
| Circulatory System | 36 | 75.1 | 41.7 | 30.6 | 0.0 | 2.8 | 25.0 | 0.0 | 25.0 | 33.3 | 66.7 |
| Respiratory System | 381 | 76.0 | 61.7 | 11.5 | 1.0 | 1.8 | 23.9 | 4.7 | 19.2 | 4.0 | 96.0 |
| Dental | 103 | 54.4 | 29.1 | 16.5 | 1.0 | 7.8 | 45.6 | 9.7 | 35.9 | 43.1 | 56.9 |
| Digestive, Other | 81 | 59.2 | 43.2 | 12.3 | 0.0 | 3.7 | 40.7 | 3.7 | 37.0 | 10.4 | 89.6 |
| Genito-Urinary System | 78 | 71.9 | 60.3 | 9.0 | 1.3 | 1.3 | 28.2 | 6.4 | 21.8 | 10.3 | 89.7 |
| Skin | 203 | 83.7 | 71.4 | 10.8 | 0.0 | 1.5 | 16.2 | 4.4 | 11.8 | 3.4 | 96.6 |
| Musculoskeletal | 46 | 49.9 | 41.3 | 4.3 | 0.0 | 4.3 | 50.0 | 6.5 | 43.5 | 22.0 | 78.0 |
| Birth Defects | 117 | 42.7 | 29.9 | 8.5 | 0.0 | 4.3 | 57.3 | 6.0 | 51.3 | 11.6 | 88.4 |
| Birth Problems (perinatal) | 32 | 43.7 | 28.1 | 12.5 | 0.0 | 3.1 | 56.3 | 6.3 | 50.0 | 0.0 | 100.0 |
| Accidents, Poisoning and Violence | 31 | 61.3 | 48.4 | 12.9 | 0.0 | 0.0 | 38.7 | 0.0 | 38.7 | 23.1 | 76.9 |
| Immunizations | 367 | 58.6 | 36.0 | 16.1 | 0.0 | 6.5 | 41.4 | 16.1 | 25.3 | 55.3 | 44.7 |
| All other conditions | 119 | 58.8 | 43.7 | 13.4 | 0.0 | 1.7 | 40.3 | 4.2 | 36.1 | 11.6 | 88.4 |
| Status | | | | | | | | | | | |
| Cause for Exam | 838 | 68.9 | 55.4 | 11.0 | 0.7 | 1.8 | 31.2 | 4.8 | 26.4 | 6.8 | 93.2 |
| Found at Screen | 641 | 56.1 | 34.9 | 15.6 | 0.6 | 5.0 | 43.9 | 6.1 | 37.8 | 21.2 | 78.8 |
| Could be Either | 1003 | 64.4 | 46.2 | 14.1 | 0.0 | 4.1 | 35.7 | 8.9 | 26.8 | 22.7 | 77.3 |

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[1] Excludes problems where status could not be determined (project's code '4').

[2] Child reached first appointment after screen and did not require further treatment.

[3] Includes problems closed as "family moved", "unable to contact", or "other".

[4] This category primarily includes clients who were actually not eligible for either EPSDT or treatment.

[5] Includes those who missed their appointment as originally scheduled. Many of these scheduled and reached a subsequent appointment.

[6] Child reached first appointment but additional visits were needed.

## TABLE A-28: DEGREE OF CASE MONITORING REQUIRED FOR TOTAL PROBLEMS

| | | LCM SAME AS ECM | | | | | | LCM DIFFERENT | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N (1) | Total (2) | Fully Treated at Screen (3) | Only One Visit Needed (4) | Unable to Contact (5) | Treatment Not Available (6) | Refused (7) | Total (8) | Missed First Appointment (9) | Additional Visits Required (10) | Number of Treatments Required 1 (11) | 2 (12) |
| Total | 4307 | 79.5 | 42.9 | 26.7 | 7.7 | 0.2 | 2.0 | 20.9 | 3.9 | 17.0 | 52.9 | 47.1 |
| Actually received ECM | 3271 | 79.7 | 38.5 | 29.2 | 9.2 | 0.2 | 2.6 | 20.4 | 2.3 | 18.1 | 49.0 | 51.0 |
| Actually received LCM | 1036 | 77.6 | 54.6 | 19.0 | 3.2 | 0.4 | 0.4 | 22.4 | 8.9 | 13.5 | 65.4 | 34.6 |
| Age | | | | | | | | | | | | |
| Under 1 | 1371 | 78.3 | 40.8 | 27.6 | 7.6 | 0.4 | 1.9 | 21.7 | 2.7 | 19.0 | 47.1 | 52.9 |
| 1-6 | 1792 | 78.6 | 40.5 | 26.5 | 9.3 | 0.2 | 2.1 | 21.4 | 5.4 | 16.0 | 53.0 | 47.0 |
| 7-13 | 864 | 79.1 | 45.4 | 26.7 | 4.7 | 0.1 | 2.2 | 20.6 | 3.2 | 17.6 | 57.9 | 42.1 |
| 14-20 | 280 | 86.1 | 52.5 | 23.9 | 7.9 | 0.0 | 1.8 | 13.5 | 2.5 | 11.4 | 66.8 | 33.2 |
| Provider | | | | | | | | | | | | |
| High Volume | 2293 | 83.3 | 47.5 | 26.0 | 7.7 | 0.3 | 1.8 | 16.7 | 2.1 | 14.6 | 51.9 | 48.1 |
| Low Volume | 1397 | 77.2 | 43.5 | 25.8 | 5.9 | 0.2 | 1.8 | 22.8 | 4.6 | 18.2 | 57.0 | 43.0 |
| Community Clinics | 277 | 75.2 | 28.2 | 36.1 | 6.5 | 0.4 | 4.0 | 24.9 | 5.4 | 19.5 | 37.9 | 62.1 |
| TPCHD | 317 | 59.9 | 12.6 | 29.0 | 15.1 | 0.0 | 3.2 | 40.0 | 12.6 | 27.4 | 55.9 | 44.1 |
| Individual Providers | | | | | | | | | | | | |
| Doctor A | 1306 | 89.4 | 61.3 | 21.1 | 6.0 | 0.2 | 0.8 | 10.4 | 2.1 | 8.3 | 63.9 | 36.1 |
| Doctor B | 395 | 76.9 | 13.4 | 50.6 | 10.1 | 0.5 | 2.3 | 23.0 | 1.0 | 22.0 | 17.4 | 82.6 |
| Doctor C | 175 | 69.6 | 17.1 | 29.7 | 19.4 | 0.0 | 3.4 | 30.3 | 2.3 | 28.0 | 24.2 | 75.8 |
| Doctor D | 417 | 75.6 | 49.2 | 16.3 | 5.8 | 0.5 | 3.8 | 24.5 | 2.9 | 21.6 | 57.4 | 42.6 |
| Doctor E | 344 | 81.7 | 57.0 | 18.6 | 3.8 | 0.0 | 2.3 | 18.3 | 4.9 | 13.4 | 71.8 | 28.2 |
| Doctor F | 274 | 73.4 | 26.3 | 38.3 | 7.7 | 0.0 | 1.1 | 26.6 | 5.8 | 20.8 | 41.1 | 58.9 |
| Doctor G | 411 | 81.6 | 53.0 | 23.4 | 3.2 | 0.5 | 1.5 | 18.5 | 4.1 | 14.4 | 62.5 | 37.5 |
| ICDA | | | | | | | | | | | | |
| Infective Diseases and Parasites | 186 | 89.3 | 62.4 | 24.2 | 2.2 | 0.0 | 0.5 | 10.7 | 0.5 | 10.2 | 67.0 | 33.0 |
| Nutritional Deficienci Endocrine and Metabolic Disorders | 135 | 71.9 | 32.6 | 22.2 | 11.9 | 0.0 | 5.2 | 28.1 | 2.2 | 25.9 | 41.3 | 58.7 |
| Blood Diseases (and Blood forming organs) | 216 | 67.6 | 22.7 | 26.4 | 13.4 | 0.9 | 4.2 | 32.4 | 4.2 | 28.2 | 23.7 | 76.3 |
| Mental Disorders | 202 | 61.9 | 28.7 | 20.8 | 9.9 | 0.5 | 2.0 | 38.2 | 4.5 | 33.7 | 36.1 | 63.9 |
| Nervous System and Sense Organs | 599 | 76.7 | 30.6 | 34.7 | 9.7 | 0.0 | 1.7 | 23.4 | 4.2 | 19.2 | 42.9 | 57.1 |
| Circulatory System | 54 | 83.4 | 33.3 | 27.8 | 20.4 | 0.0 | 1.9 | 16.7 | 0.0 | 16.7 | 51.0 | 49.0 |
| Respiratory System | 1053 | 91.4 | 63.8 | 22.3 | 4.2 | 0.4 | 0.7 | 8.6 | 1.7 | 6.9 | 64.7 | 35.3 |
| Dental | 113 | 58.3 | 8.8 | 26.5 | 15.0 | 0.9 | 7.1 | 41.5 | 8.8 | 32.7 | 50.7 | 49.3 |
| Other Digestive System | 167 | 80.3 | 51.5 | 21.0 | 6.0 | 0.0 | 1.8 | 19.8 | 1.8 | 18.0 | 57.1 | 42.9 |
| Genito-urinary system | 158 | 85.9 | 50.6 | 29.7 | 4.4 | 0.6 | 0.6 | 14.0 | 3.2 | 10.8 | 56.1 | 43.9 |
| Skin | 514 | 93.6 | 60.5 | 28.2 | 4.3 | 0.0 | 0.6 | 6.5 | 1.8 | 4.7 | 61.3 | 38.7 |
| Musculoskeletal | 75 | 69.4 | 38.7 | 25.3 | 2.7 | 0.0 | 2.7 | 30.7 | 4.0 | 26.7 | 51.4 | 48.6 |
| Birth Defects | 156 | 57.0 | 25.0 | 22.4 | 6.4 | 0.0 | 3.2 | 43.0 | 4.5 | 38.5 | 34.7 | 65.3 |
| Birth Problems (perinatal) | 39 | 53.9 | 17.9 | 23.1 | 10.3 | 0.0 | 2.6 | 46.1 | 5.1 | 41.0 | 18.4 | 81.6 |
| Accidents, Poisoning, and Violence | 86 | 86.1 | 64.0 | 17.4 | 4.7 | 0.0 | 0.0 | 14.0 | 0.0 | 14.0 | 69.3 | 30.7 |
| Immunizations | 369 | 58.6 | 0.5 | 35.8 | 16.0 | 0.0 | 6.5 | 41.2 | 16.0 | 25.2 | 55.0 | 45.0 |
| All other conditions | 185 | 74.0 | 35.7 | 28.1 | 8.6 | 0.5 | 1.1 | 25.9 | 2.7 | 23.2 | 43.5 | 56.5 |
| Status | | | | | | | | | | | | |
| Cause for Exam | 1876 | 86.0 | 55.3 | 24.7 | 4.9 | 0.3 | 0.8 | 13.9 | 2.1 | 11.8 | 58.0 | 42.0 |
| Found at Screen | 858 | 67.3 | 25.3 | 26.1 | 11.7 | 0.5 | 3.7 | 32.7 | 4.5 | 28.2 | 41.2 | 58.8 |
| Could be Either | 1573 | 77.2 | 36.2 | 29.4 | 9.0 | 0.0 | 2.6 | 22.8 | 5.7 | 17.1 | 52.5 | 47.5 |

# APPENDIX B

# PROJECT FORMS

# APPENDIX B-1

## CONSENT FORM

Consent Form for

EPSDT FOLLOW UP-DEMONSTRATION PROJECT

You have brought your child(ren) ________________________________to the doctor or
Name(s)
clinic for a physical examination, which will be paid for by a child health program called EPSDT*. The State Health Services Division and the Tacoma-Pierce County Health Department are conducting a special project to find ways to improve this program so that more children will receive the health care they need.

We are asking you and your doctor to help us by giving us information on the health of your child. The information will be confidential and will only be seen by your doctor and by project nurses and health workers. If you agree to participate, this is what will happen:

1. The doctor or nurse will examine your child and fill out a form which will give the project the results of the examination.
2. If a problem is found it may be treated immediately or you will be told by your doctor to come back or take the child to another doctor or dentist.
3. When the doctor tells us there is a problem, the project nurse or health worker may call you to discuss the problem and work out a plan to be sure your child gets treated as soon as possible. The project can help make appointments and provide transportation, if needed.
4. When the problem has been treated your name and the child's name will be taken off the form so that no one will be able to identify the information. Until then the forms will be kept in locked files at the project center.

Participation of parents in this project is entirely voluntary. You are free to refuse or drop out at anytime. If you have questions before you decide, ask the nurse or receptionist or call the Project Center - 593-4901.

Rebecca Curneen, RN
Rebecca Curneen, R.N., EPSDT Project Director, 955 Tacoma Avenue South, Tacoma, WA 98402

---

Parent's Consent Statement

____I voluntarily consent to participate in this project as described above. I realize that I may refuse participation and that I may withdraw once begun, at anytime and that this will not affect any services I may be receiving now or in the future.

____I do not wish to participate in the program described above.

| | | | |
|---|---|---|---|
| Signature of Parent or Guardian | Date | Signature of Witness | Date |

ADDRESS

PHONE

*EPSDT - Early and Periodic Screening Diagnosis and Treatment Program. A federal-state program to find and treat health problems of children under 21 eligible for Medicaid.

# APPENDIX B-2

# SCREENING SHEET

# SCREENING SHEET

**FORM 2**

**A** Child's Medicaid Number | (Birthdate)

Date of Service | MO | DA | YR

Child's Name (Last) (First) (MI)

**B** Sex 1 ☐ M 2 ☐ F

Family Name (On Coupon) (Last) (First) (MI) | Phone

**ETHNICITY**
1 ☐ Black
2 ☐ White
3 ☐ Asian
4 ☐ Native American
5 ☐ Mexican American
6 ☐ Other

Child's Address | Zip Code **9** **8**

Child's Regular Physician:

Screening Provider: Number

**PROJECT SCREENING SEQUENCE**
1 ☐ Initial *(first screen since June 1, 1977)*
2 ☐ Infant Rescreen
3 ☐ Annual Rescreen *(12 months after project initial screen)*
4 ☐ Other______________

## C VITAL SIGNS AND MEASUREMENTS

| | | | | |
|---|---|---|---|---|
| *cm* *in* | *grams* *lb/oz* | *cm* *in* | | |
| Height | Weight | Head Circumference *(up to 18 months)* | HCT/Hb | Blood Pressure *(3 years & older)* |

## D HEALTHINESS RATING

Child's Healthiness Rating

*(Current) (Circle most appropriate digit)*

*1 2 3 4 5 6 7 8 9*

Unwell . . . . . . . . . . . . . . . . .Well

## E IMMUNIZATION STATUS

**Check Only One:**

1 ☐ Already current for age before examination
2 ☐ Immunizations administered at screening (brought current for age)
3 ☐ Immunizations required subsequent to screening to make current for age

*(If E3 is checked, please list in Section G)*

## F SCREENING/PROBLEM IDENTIFICATION

*(Any item checked as a problem must be entered in Section G)*

| | | *NML | Prob | NA |
|---|---|---|---|---|
| Ht/Wt/Age | 01 | | | |
| HCT/Hb | 02 | | | |
| Blood Pressure | 03 | | | |
| TB Skin Test | 04 | | | |
| Lead | 05 | | | |
| Sickle Cell | 06 | | | |
| Urine Test | 07 | | | |
| Pap Test | 08 | | | |
| PKU | 09 | | | |
| Eyes | 10 | | | |
| Ears | 11 | | | |
| Nose & Throat | 12 | | | |
| Heart | 13 | | | |
| Lungs | 14 | | | |
| GI | 15 | | | |
| GU | 16 | | | |
| Skin | 17 | | | |
| Musculo-skeletal | 18 | | | |
| Venereal Disease | 19 | | | |
| Contagious Disease | 20 | | | |
| Neurological | 21 | | | |
| Motor Development | 22 | | | |
| Speech/language | 23 | | | |
| Social/emotional | 24 | | | |
| Intellectual Development | 25 | | | |
| Dental | 26 | | | |
| Vision | 27 | | | |
| Hearing | 28 | | | |
| Nutritional | 29 | | | |

**NML = Normal, PROB = Problem*
*NA = Not Appropriate*

## G PROBLEMS

*(List all problems checked in Section F, including those treated this visit and E3, if checked)*

| Problems (Use problem No. from Section F) | ICDA Code | Treated this visit | Referred and to whom |
|---|---|---|---|
| | | ☐ | ☐ |
| | | ☐ | ☐ |
| | | ☐ | ☐ |
| | | ☐ | ☐ |
| | | ☐ | ☐ |

*(List each problem in this section on Medical Referral sheet)*

## H COMMENTS

## I IS SCREEN COMPLETE?

1st Visit 1 ☐ 2nd Visit 2 ☐ Incomplete 3 ☐

If Screen is Incomplete indicate reason:

Signature ______________ MD 1 ☐ PNP 2 ☐ Other 3 ☐ ______________

*Keep first 2 copies until screen complete. Upon completion, return second copy to project.*

*SCREENER COPY 1*

Z-625-1

# APPENDIX B-3

# MEDICAL REFERRAL

FORM 3

# MEDICAL REFERRAL

Child's Medicaid Number (Birthdate)

ild's Name) (Last) (First) (MI)

Referral Number **01688**

amily Name (Last) (First) (MI) Phone
n Coupon)

Child's Address

Zip Code 9 8

Date of Screen MO DA YR

reening/Treatment Provider: Number

|  |  |  |  |
|---|---|---|---|
| ROBLEM IDENTIFICATION<br>ICDA Code from Screening Sheet | Problem 1 | Problem 2 | Problem 3 |
| Problem Description |  |  |  |
| Completely New Condition | 1 ☐ | 1 ☐ | 1 ☐ |
| Previously Known, Under Care | 2 ☐ | 2 ☐ | 2 ☐ |
| Previously Known, Not Under Care | 3 ☐ | 3 ☐ | 3 ☐ |
| Problem Treated This Visit | 1 ☐ | 1 ☐ | 1 ☐ |
| Problem Referred for Diagnosis/Treatment | 2 ☐ | 2 ☐ | 2 ☐ |
| Referred to |  |  |  |

|  |  |  |  |
|---|---|---|---|
| PROBLEM CLASSIFICATION<br>Treatment date | MO DA YR | MO DA YR | MO DA YR |
| Suspected Problem Confirmed | YES ☐ NO ☐ | YES ☐ NO ☐ | YES ☐ NO ☐ |
| If No, New ICDA Code |  |  |  |
| & Diagnosis |  |  |  |
|  | acute ☐ chronic ☐ | acute ☐ chronic ☐ | acute ☐ chronic ☐ |
| Severity (*Least = 1, Most = 5*) | 1 2 3 4 5 | 1 2 3 4 5 | 1 2 3 4 5 |
| Problem Status<br>a Treatment/Immunization Completed? | 1 ☐ | 1 ☐ | 1 ☐ |
| b. Treatment Terminated (*Maximum Benefit Achieved*) | 2 ☐ | 2 ☐ | 2 ☐ |
| c. Condition Noted,<br>Treatment Not Advised or Warranted | 3 ☐ | 3 ☐ | 3 ☐ |
| d Still Under Treatment<br>1) By this provider | 4 ☐ | 4 ☐ | 4 ☐ |
| 2) Referred elsewhere for further care | 5 ☐ | 5 ☐ | 5 ☐ |
| Referred to: |  |  |  |

MUNIZATION FOLLOW-UP

Complete if Immunizations Needed

| IMMUNIZATIONS | Check Doses Received |  |  |  |  |  |
|---|---|---|---|---|---|---|
|  | None | 1 | 2 | 3 | 4 | 5 |
| Any Combination of DTP, DT and Td |  |  |  |  |  |  |
| OPV |  |  |  |  |  |  |
| Measles |  |  |  |  |  |  |
| Mumps |  |  |  |  |  |  |
| Rubella |  |  |  |  |  |  |

Referred to
Date next dose

COMMENTS
(*Treatment given*)

**PROVIDER**

# APPENDIX B-4

## FORM LETTER TO NON-PROJECT TREATMENT PROVIDERS

# Tacoma-Pierce County Health Department

**E.P.S.D.T. DEMONSTRATION PROJECT**
955 TAcoma Avenue South, Room 209
Tacoma, Washington 98402

Date: ____________________

Dear ______________________________,

________________________________________________, is a participant in the E.P.S.D.T. Demonstration Project and has been referred to you for diagnosis/treatment following E.P.S.D.T. screening, for the following problem: ____________________

________________________________________________.

As a participant in this project the individuals medical problems are followed to determine resolution rates with and without case monitoring.

Please complete the information below. Retain second copy and signed consent for your records. Return envelope enclosed.

Sincerely,

Rebecca Curneen, RN
Project Director

| | | | |
|---|---|---|---|
| ICDA Code | | | |
| **PROBLEM CLASSIFICATION** Treatment date | MO DA YR | MO DA YR | MO DA YR |
| Suspected Problem Confirmed | YES ☐ NO ☐ | YES ☐ NO ☐ | YES ☐ NO ☐ |
| If No. New ICDA Code | | | |
| & Diagnosis | | | |
| | acute ☐ chronic ☐ | acute ☐ chronic ☐ | acute ☐ chronic ☐ |
| Severity *(Least = 1 Most = 5)* | 1 2 3 4 5 | 1 2 3 4 5 | 1 2 3 4 5 |
| Problem Status<br>a Treatment Immunization Completed? | 1 ☐ | 1 ☐ | 1 ☐ |
| b Treatment Terminated *(Maximum Benefit Achieved)* | 2 ☐ | 2 ☐ | 2 ☐ |
| c Condition Noted Treatment Not Advised or Warranted | 3 ☐ | 3 ☐ | 3 ☐ |
| d Still Under Treatment<br>1) By this provider | 4 ☐ | 4 ☐ | 4 ☐ |
| 2) Referred elsewhere for further care | 5 ☐ | 5 ☐ | 5 ☐ |
| Referred to | | | |

COMMENTS:

Project Copy

HEA 662 (9/77)

# APPENDIX B-5

## INSTRUCTIONS TO PROVIDERS REGARDING FORMS 2 AND 3

## Early and Periodic Screening, Diagnosis and Treatment Project:

## Demonstration in Follow-Up

## Screening Sheet, Form 2

General Instructions:

Start completing experimental group (Form 2). These children will be receiving follow-up services.

Complete Form 2 and Consent Form on all children who have DPA medical coupons. Refer to "EPSDT Screen Sheet - Instruction Sheet" for filling out Form 2.

Keep first page of Form 2 for your records. This form will identify for you which patients are in the experimental group. All patients who have Form 2 completed will be followed-up by our outreach workers. They will be contacted before their appointment to insure that they will be able to follow through. There will also be a contact made after their follow-up visit to determine if treatment was complete.

Those children who have a orange form (Form I) in their record will remain in the control group, but a white form (Form 2) should be completed.

Hold 2nd and 3rd copy of Screen Sheet (Form 2) and the Consent Form to be picked up by project staff every two weeks.

If you have any questions please contact:

Judy Caldwell or Rebecca Curneen at 593-4901.

If more forms are needed please contact our office.

/18/77

EPSDT Screen Sheet - Instruction Sheet, Form 2

## SECTION A

1. Child's Medicaid Number - Enter in the spaces provided, starting from the left, e.g.,

   Child's Medicaid Number | C U | 0 9 1 6 7 1 | S M I T H | A |
   Initials Birthdate Last Name

2. Date of Service - Enter numerically, e.g.,

   Date of Service |0 5 1 4 7 7|
   MO DA YR

3. Child's Name - Print the last name of the child in the space provided, then the first name, then middle initial.

4. Family Name (On Coupon) - Print the last name of the head of the household as it appears on the coupon in the space provided, then the first name, then middle initia

5. Phone - Enter the telephone number through which information about the child may be obtained or relayed, e.g.,

   Phone |5 5 5 1 2 1 2|

6. Child's Address - Enter the address of the child's home and Zip Code, e.g.,

   Child's Address 1767 Shaw Drive, Apt. 3-B 98555

7. Child's Regular Physician - Enter name of child's regularprovider in the space provided.

8. Screening Provider - Enter the name of the screening provider in the space provided.

9. Number - Enter the number of the screening provider in the spaces provided, e.g.,

   Number |1 2 5 4 7 6|

## SECTION B

1. Sex - Check the appropriate box, e.g.,

   Sex 1☐M 2☒F

2. Ethnicity - Check the appropriate box to indicate the ethnicity of the child. If in question, ask parent for identification of ethnicity. Check only 1 box.

3. Project Screening Sequence - Check the appropriate box:

   1 Initial - First screen since June 1, 1977.
   2 Infant Rescreen - All screens on infant during first year of life after project initial screen.
   3 Annual Rescreen - All screens that occur one year after initial project screen and annually thereafter.
   4 Other - All screens not included in above, including interim screen (all screens of children more than one year of age during the 11 months following and annual screen). Please give brief description.

## SECTION C

1. Vital Signs and Measurements -

   Height - Enter height in inches or centimeters and circle appropriate measurement, e.g., Height 34 1/2 cm [✓ in]

   Weight - Enter weight in pounds or grams and circle appropriate measurement, e.g., Weight 63-6 grams [✓ lb/oz]

Head Circumference - Enter head circumference on all children less than 18 months of age.

HCT/Hb - Enter the exact reading and circle appropriate measurement, e.g.,

HCT/Hb 40%
[✓ HCT]/Hb

Blood Pressure - Enter the blood pressure as determined by sphygmometer on all children over 3 years of age. Enter both systolic and diastolic pressures.

SECTION D

1. Healthiness Rating - Circle appropriate number. The rating is the screener's overall impression of the child's current health in terms of a numerical rating on a scale of 1 to 9. For further information see Appendix I.

SECTION E

1. Immunization Status - Check only one.

1 Already current for age before examination - Check if child's immunizations are up to date at time he enters office for screening.

2 Immunizations administered at screening (brought current for age) - Check for all children who are immunized during screening visit and who are now current for age.

3 Immunizations required subsequent to screening to make current for age - This section is for children who need further immunizations. If number 3 is checked, also include as problem in Section G.

SECTION F -

Screening/Problem Identification - One box in each category must be checked for screening to be complete.

NML = Normal, PROB = Problem, NA = Not appropriate

01 Ht/Wt/Age - Check NML or PROB for all children, resulting measurements on growth grid.
02 HCT/HB - Check NML or PROB. If the HCT or Hb is not within the range of normal, check PROB. If this test was normal within past 12 months, check NML.
03 Blood Pressure - Check NML or PROB for children over 3 years of age. Check NA for those under 3 years. PROB to be checked if blood pressure is greater than those recommended for age.
04 TB Skin Test - Check NML, PROB or NA. If test was normal within past 12 months, check NML.
05 Lead - NA unless indicated. Leave category blank until lab results are returned.
06 Sickle Cell - NA unless indicated. Check NML if test has been done at any time and results found to be normal. Leave blank if administered during screen and awaiting results.
07 Urine Test - Check NML or PROB. If this test was normal during past 12 months and it is not being repeated at this time, may check NML.
08 Pap Test - Check NML, PROB or NA. Leave blank if awaiting results.
09 PKU - Check NML, PROB or NA. If test has ever been administered and found to be normal, check NML.
10 to 25 - Check NML or PROB in each category.
26 Dental - Check NML or PROB. Check PROB if check-up or treatment is indicated.
27 Vision - Check NML for normal vision and those who have adequately corrected vision. Check PROB for abnormal vision without corrective lens or specific complaints that would require referral.
28 Hearing - Check NML or PROB for all children.
29 Nutritional - Check NML, PROB or NA.

Any problem checked as a problem in this section must be entered in Section G.

SECTION G

1. Problems - Must identify all problems. Use problem number from Section F.

2. ICDA Code - Refer to Appendix II.

3. Check appropriate box: Both boxes can be checked if appropriate.

Treated this visit ☒ - if treated in your office or clinic; or

Referred ☒ - if referred to outside provider. If referred elsewhere, give name of person to whom referred in space provided.

SECTION H

1. Comments - Any pertinent information, especially that which would assist with our follow-up, e.g., if you make appointment for child to return to your office, put date in this space. Also, if you refer to Orthopedic doctor, put name here. Please be as specific as possible.

SECTION I

1. Is Screen Complete? - Screening is complete when:

- All the family identification information is filled out.
- When the physical exam and the results of all required tests have been returned.
- When the child's healthiness rating has been entered.
- All problems from Section F have been further identified in Section G.

The screener then checks the screening complete box: 1st visit ☒

If additional visits, within two weeks after the initial screening date, have been required to complete the screen, check screen complete: 2nd visit ☒

If screen, after two weeks of initial screening date, is incomplete for any reason, check: Incomplete ☒ and indicate reason in the space provided.

If Screen is Incomplete indicate reason - If Incomplete box has been checked, indicate reason why screen is incomplete, e.g., unable to collect urine from 2 year old.

Signature - Form can be signed by any person completing form. Name signed should be name of person who did the screen, e.g., physician's office staff may sign physician's signature and check appropriate box - MD ☒

If a waiting results of test, keep 2nd copy until test complete. Complete second copy and hold for pick-up.

## Appendix I

Child's Healthiness Rating: The healthiness rating is the screener's general overall impression of the child's current health in terms of a numerical rating on a scale of 1 to 9. The intent is to indicate the ability of the child to learn, perceive and play on the basis of medical or social factors. Circle the rating considered to be representative of the child's overall healthiness. In arriving at a rating, use the following guidelines:

a. Compare each child to the general population of children, not just those from the demonstration catchment area.
b. Rate healthiness to reflect the total health picture, considering numerous problems found in a child as having the effect of lowering the rating you would give any of those problems.
c. Rate children having permanent, uncorrectable disabilities according to their general health level. Consider adjustment to the disability and degree of rehabilitation achieved as reflective of healthiness.
d. Use the categories listed below, together with their definitions and clinical examples, only as guidelines in determining where on the continuum of health (1-9) a child falls.

Unhealthy (1,2): Has life threatening problem if remains untreated, e.g.,

Cyanotic heart murmur
Bacterial pneumonia
Severe uncontrolled diabetes
Severe failure to thrive (psychosocial origin)

Moderately Unhealthy (3,4): Limited in ability to learn, play or perceive until somewhat difficult correction is accomplished, e.g.,

Anemias below 28 HCT
Severe visual or hearing loss
Mental or motor development delays
Malnutrition
Severe obesity

Moderately Healthy (5,6): Requires a slight change in life style or relatively simple medical control or correction, e.g.,

Urinary tract infection
Umbilical or inguinal hernia
Ringworm with secondary infection
Impetigo
Intestinal parasites
Anemias, 28-33 HCT
Asthma
Tonsillar hypertrophy
Mild hearing or visual loss
URI with otitis media

Healthy (7,8): Has no observable disease, or only that which is brief and self limiting (may include dental caries).

Mild URI without otitis media
Few dental caries

Superior Health (9): No observable disease. Exhibits evidence of positive health habits. Is alert and has good muscle tone. The "picture of health".

## Appendix II

## ICDA Categories

This is a list of commonly used ICDA Codes. If necessary, refer to the ICDA Code Book for those not listed.

### Infectious Disease and Parasites

| | |
|---|---|
| Diarrhea | 009.1 |
| Streptococcal Sore throat | 034.0 |
| Scarlet Fever | 034.1 |
| Infectious hepatitis | 070.0 |
| Mumps | 072.0 |
| Pedculosis | 132.0 |
| Scabies | 133.0 |

### Endocrine, Nutritional and Metabolic Diseases

| | |
|---|---|
| Diabetes Mellitus | |
| with mention of acidosis or coma | 250.0 |
| without mention of acidosis or coma | 250.9 |
| Underweight, Malnutrition | 269.9 |
| Obesity, not specified as of endocrine origin | 277.0 |

### Diseases of the Blood and Blood-Forming Organs

| | |
|---|---|
| Iron deficiency anemias of prematurity | 280.0 |
| Anemia-Nutritional deficiency | 281.9 |

### Mental Disorders

| | |
|---|---|
| Specific learning disorders | 306.1 |
| Alexia (congenital) (developmental) | |
| Specific learning defects (reading) (mathematics)(strephosymbolia) | |
| Word blindness or word deafness (developmental) | |

| | | |
|---|---|---|
| Specific disorders of sleep | | 306.4 |
| Hypersomnia | Nightmare | |
| Insomnia | Sleep walking | |

| | |
|---|---|
| Enuresis | 306.6 |
| Enuresis<br>Incontinence of urine -of nonorganic origin | |

| | |
|---|---|
| Encopresis | 306.7 |
| Encopresis<br>Incontinence of feces - of nonorganic origin | |

| | | |
|---|---|---|
| Transient situational disturbances | | 307.0 |
| Adjustment reaction of: | | |
| adolescence | Adult situational reaction | |
| late life | Combat fatigue | |
| | Gross stress reaction | |

| | | | |
|---|---|---|---|
| Behavioral disorders of childhood | | | 308.0 |
| Adjustment reaction of: | | | |
| childhood | Jealousy | Tantrum | |
| infancy | Masturbation | Truancy | |

## Diseases and Conditions of the Eye

| | |
|---|---|
| Myopia | 370.0 |
| Amblyopia | 377.2 |

## Diseases of the Ear and Mastoid Process

| | |
|---|---|
| Acute Otitus Media without mention of mastoiditis | 381.0 |
| Chronic Otitis Media without mention of mastoiditis | 381.1 |
| Wax in ear | 387.1 |

## Diseases of the Respiratory System

| | |
|---|---|
| Acute nasopharyngitis (common cold) | 460.0 |
| Acute Pharyngitis (sore throat) | 462.0 |
| Acute Tonsillitis | 463.0 |
| Acute U.R.I. | 465.0 |

## Diseases of the Digestive System

| | |
|---|---|
| Overbite | 524.2 |
| Dental Caries | 521.0 |
| Umbilical Hernia | 551.1 |

## Diseases of the Skin

| | |
|---|---|
| Impetigo | 684.0 |
| Seborrhea | 690.0 |
| Seborrhea Infantile | 691.0 |
| Eczema | 691.0 |
| Diaper Rash | 692.9 |
| Acne | 706.1 |
| Uticaria | 708.0 |
| Hives/Nettes | 918.0 |

## Symptoms and ill-defined conditions

| | |
|---|---|
| Cough | 763.3 |
| Nausea and vomiting | 784.1 |
| Rash | 788.2 |
| Hypospadias | 752.2 |
| Congential hydroceale | 752.4 |
| Undecended Testile | 752.1 |
| Vertigo | 780.5 |

## Others

| | |
|---|---|
| Headache | 306.8 |
| Scolosis | 735.0 |
| Functional Heart (murmur) | 424.9 |
| Social/Emotional Adolescent | 307.0 |
| Social/Emotional Child | 308.0 |
| Failure to Thrive | 778.9 |
| Child Neglect | 994.9 |
| Potential Abuse | 996.8 |

# EPSDT - DEMONSTRATION PROJECT

## MEDICAL REFERRAL, FORM 3

A. General Instructions:

1. The Medical Referral form is to be completed on all problems noted on the Screening Sheet #2 Section G.
2. Up to three problems on a single patient may be reported on single referral form.
3. If referring for treatment complete SCREENER section only. When referring to another medical care source, Project Staff will send a letter and follow-up Screening Sheet to the treatment provider.
4. If treating this visit complete both SCREENER and SCREENER/TREATMENT provider section.
5. Problems from Section E, of Screening Sheet, will be noted in SCREENER section and IMMUNIZATION FOLLOW-UP (bottom left).
6. Keep top copy for your records.
7. Please staple second, third, and fourth copy of the Medical Referral forms to Screening Sheet. Identification information will be transfered by project staff from Screening Sheet to Medical Referral form provided they have been stapled together.

If you have any questions please contact Judy Caldwell or Rebecca Curneen, 593-4901.

If more forms are needed please contact our office.

10/5/77

EPSDT Medical Referral Sheet - Instruction Sheet, Form 3

1. (Child's) Medicaid Number - Enter in the spaces provided, starting from the left, e.g.,

| | | | | |
|---|---|---|---|---|
| (Child's) Medicaid No. | C U | 0 9 1 5 7 1 | S M I T H | A |
| | Initials | Birthdate | Last Name | |

2. Referral No. - Each referral is individually prenumbered.

3. Child's Name - Print the last name of the child in the space provided, then the first name, then middle initial.

4. Family Name (on coupon) - Print the last name of the head of the household as it appears on coupon in the space provided, then the first name, then middle initial.

5. Phone # - Enter the telephone number through which information about the child may be obtained or relayed, e.g.,
   Phone 555 - 1212

6. Child's Address - Enter the address of the child's home and the Zip Code number, e.g.,
   Child's Address 1767 Shaw Drive Apt. 3-B 98402

7. Screening/Treatment Provider - Name of provider who is doing screen and/or treatment. (Not provider to who child is referred)

8. Problem Identification - This section contains information for up to three problems. If more than three problems use second form. Screener completes this section on each problem identified.
   a. ICDA - use code from screening sheet.
   b. Check appropriate box (Check one):
      1. Completely New Condition - Leave blank if not appropriate. ☐
      2. Previously known, under care - Use for cases that are problems. ☐
      3. Previously known, not under care - Check if appropriate. ☒
   c. Check appropriate box (Check one):
      1. Problem Treated this Visit - Check if treated this visit, not necessarily completed ☒
      2. Problem Referred for Diagnosis/Treatment - Check if referred. Include name of person to whom referring immediately underneath, e.g.,

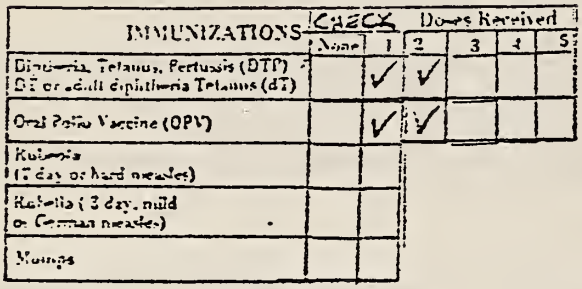
      Problem Referred for Diagnosis/Treatment ☒
      Referred to: Dr. Mueller

9. Problem Classification - Complete this section only if you are a screening provider giving treatment.
   a. Treatment date: Enter date treatment given.
   b. Suspected Problem Confirmed: Check yes or no. If yes, skip to Acute/Chronic
   c. If no, New Diagnosis & ICDA Code - See Appendix II in screening instructions for ICDA Code.
   d. Acute ☐ Chronic ☐ - Check appropriate box.
   e. Severity Rating - See Appendix III. Check on scale YOUR evaluation.
   f. Problem Status - Check one box, e.g.,
      1. Treatment/Immunization completed? ☐
      2. Treatment terminated (maximum benefit achieved) ☒
      3. Condition noted, treatment not advised or warranted ☐
      If referred elsewhere, give name of provider to whom referred.

5/77

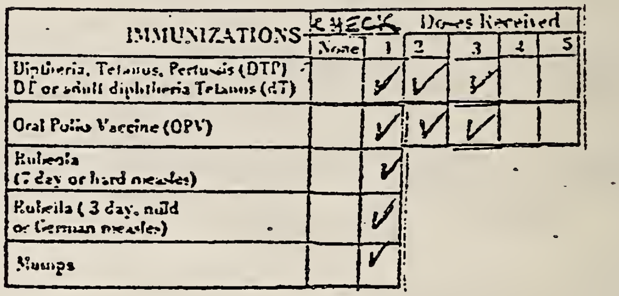
10. Immunization Follow-up - Check box if immunizations subsequent to screen are required.
Complete information on Immunizations Check all doses received, e.g.,

e.g., (1)
5 month old with 2 DPT + OPV's



| IMMUNIZATIONS | CHECK | Doses Received | | | | |
|---|---|---|---|---|---|---|
| | None | 1 | 2 | 3 | 4 | 5 |
| Diphtheria, Tetanus, Pertussis (DTP) DT or adult diphtheria Tetanus (dT) | | ✓ | ✓ | | | |
| Oral Polio Vaccine (OPV) | | ✓ | ✓ | | | |
| Rubeola (7 day or hard measles) | | | | | | |
| Rubella (3 day, mild or German measles) | | | | | | |
| Mumps | | | | | | |

e.g., (2)
2 year old with DPT + OPV to 3rd, also MMR complete



| IMMUNIZATIONS | CHECK | Doses Received | | | | |
|---|---|---|---|---|---|---|
| | None | 1 | 2 | 3 | 4 | 5 |
| Diphtheria, Tetanus, Pertussis (DTP) DT or adult diphtheria Tetanus (dT) | | ✓ | ✓ | ✓ | | |
| Oral Polio Vaccine (OPV) | | ✓ | ✓ | ✓ | | |
| Rubeola (7 day or hard measles) | | ✓ | | | | |
| Rubella (3 day, mild or German measles) | | ✓ | | | | |
| Mumps | | ✓ | | | | |

Referred to - Please indicate e.g., self, TPCHD, etc.

Date next dose - Please indicate time, i.e., actual appointment date, and return in two month etc.

11. Comments - Indicate treatment given, any necessary instructions to project staff, plans for further care, etc.

Is the diagnosed condition? (check on scale YOUR evaluation)

1 2 3 4 5
mild moderate severe

The practitioner is requested to circle or line through the number that best fits his estimate of the problem's seriousness. If it is a hernia, for example, is it mild, moderate, or severe? If severe, the implication might be that immediate remedial action is required. If less than serious, the implication is that remedial action may be deferred.

Most significantly, this is intended to be an outcome measurement of the impact of the EPSDT program on the severity of conditions found in children. It relates most specifically to the changes in conditions categorized by the practitioner as severe over time. If EPSDT is an effective program, the percent of severe conditions found, particularly in rescreens, should decline over time. This assumes that the program has been successful through treatment in either eliminating the problem, or modifying it to a moderate or mild category.

An additional evaluation effort will be to relate specific diagnostic conditions to severity and the response of these conditions through treatment to reflect reduced severity. Some type of program priority, by condition, for example, could well be an outcome of this analysis, particularly when related to associated costs.

# APPENDIX B-6

## DATA CORRECTION PROCEDURES

The University of Texas
Health Science Center at San Antonio
7703 Floyd Curl Drive
San Antonio, Texas 78284

Medical School
Department of Psychiatry
Division of Sociology
Health Services Research Institute

(512) 691-6391

February 26, 1979

Ms. Becky Curneen
EPSDT Demonstration Project
Tacoma-Pierce County Health Department
3591 South D Street
Tacoma, Washington 98408

Dear Becky:

This letter is intended to codify the data correction procedures that I think we have been following for the past few months. We should note any changes if they occur and try to keep this letter current. Please give me any comments that you might have.

General Principles

1. Please put all corrections in writing.
2. Corrections should not be mixed in with routine data entry. They should be listed on separate forms and bundled separately from original data.
3. Corrections should be made before new data are entered to prevent subsequent forms from being rejected.

Forms Not Yet Entered on the Computer

1. Data forms that we are unable to enter will be listed on the attached Pierce County Rejects form. HSRI will send this to the project whenever needed, with copies to the project director and the data clerk.
2. The project will note required corrections on this form and return it to HSRI.
3. If the Rejects list requires correction of data that have already been entered on the computer, then a separate correction sheet will be attached.
4. HSRI will correct the following without returning them to the project:

- immunization status left blank (we will code '4').
- inconsistencies in child's first name (we will make name the same as we already have on file).

Please try to catch these errors in Tacoma, however.

Correction of Data Already in the Computer

1. To correct a screening sheet, we need the child's name, pic code and screen date - as they are currently listed on the computer. For a problem form, we need the original form number and either the child's name or the pic code. These are essential identifiers.

2. The project should send HSRI a screening sheet and/or a problem form with the word "CORRECTION" written boldly across the top. This form should show:

- the essential identifiers
- the item to be corrected, as currently shown on the computer
- the correction.

Items to be deleted should be written in and then cancelled.

3. Please show all corrections to be made, even if they seem to be implied. If a problem is deleted from a referral form, for example, it should also be deleted from Sections F and G of the screening sheet. If immunization status is modified, Section G and the problem form should also be checked. If a screen date is changed on a screening sheet, it may also need to be changed on a referral form.

4. If you think a correction may be at all unclear, please add a descriptive note.

Name and Pic Code Corrections

1. These may be reported on the attached form. Unless otherwise noted, all forms for the child will be corrected.

2. All corrections should show the pic code as currently on the computer so that we can locate the child.

Data Modification Rosters

1. When the same correction is to be made for a large number of forms, we can prepare a data modification roster. This will be in duplicate, with a carbon, so that you can keep a record.

2. Please cancel pic codes for any forms that are not being modified.

3. Please do not use these rosters for any corrections other than those initially intended.

Non-project Screens

1. These should only be entered for dates after the initial project screen.

2. Please cancel pic codes for any children without screens to be added.

3. If you add non-project screens via screening sheets, we need to have them filled out as shown on the attachment. The only information that has to be correct is the name, pic code and screen date, but something has to be shown for the others just to get the sheet accepted. I suggest that you indicate the actual provider number but just use the codes shown on the attachment for everything else. Also, please be sure that form 1 is used (or marked) for any control group children.

We all thank you for your cooperation. Everything appears to be working very smoothly at the present time.

Sincerely,

Wayne

Wayne S. Stinson, Ph.D.
Research Scientist

WS:ja

Attachment

cc: Eileen Keith
Polly Newcomb
Judy Grissom
Art Britt
Sandra Balfour

FORM 2

# SCREENING SHEET

**A** Child's Medicaid Number (Birthdate)

Date of Service MO DA YR

Child's Name (Last) (First) (MI)

**B** Sex · 1 ☐ M 2 ☐ F

ETHNICITY
1 ☐ Black
2 ☐ White
3 ☐ Asian
4 ☐ Native American
5 ☐ Mexican American
6 ☐ Other

Zip Code 9 8 9 9 9

Child's Regular Physician:

Screening Provider: Number

PROJECT SCREENING SEQUENCE
1 ☐ Initial *(first screen since June 1, 1977)*
2 ☐ Infant Rescreen
3 ☐ Annual Rescreen *(12 months after project initial screen)*
4 ☒ Other

**E** IMMUNIZATION STATUS
Check Only One:
1 ☐ Already current for age before examination
2 ☐ Immunizations administered at screening (brought current for age)
3 ☐ Immunizations required subsequent to screening to make current for age
*(If E3 is checked, please list in Section G)*

4

**D** HEALTHINESS RATING
Child's Healthiness Rating
*(Current) (Circle most appropriate digit)*
1 2 3 4 5 6 7 8 9
Unwell . . . . . . . . . . . . . . . Well

**F** SCREENING/PROBLEM IDENTIFICATION
*(Any item checked as a problem must be entered in Section G)*

| | *NML | Prob | NA |
|---|---|---|---|
| Ht/Wt/Age 01 | | | |
| HCT/Hb 02 | | | |
| Blood Pressure 03 | | | |
| TB Skin Test 04 | | | |
| Lead 05 | | | |
| Sickle Cell 06 | | | |
| Urine Test 07 | | | |
| Pap Test 08 | | | |
| PKU 09 | | | |
| Eyes 10 | | | |
| Ears 11 | | | |
| Nose & Throat 12 | | | |
| Heart 13 | | | |
| Lungs 14 | | | |
| GI 15 | | | |
| GU 16 | | | |
| Skin 17 | | | |
| Musculo-skeletal 18 | | | |
| Venereal Disease 19 | | | |
| Contagious Disease 20 | | | |
| Neurological 21 | | | |
| Motor Development 22 | | | |
| Speech/language 23 | | | |
| Social/emotional 24 | | | |
| Intellectual Development 25 | | | |
| Dental 26 | | | |
| Vision 27 | | | |
| Hearing 28 | | | |
| Nutritional 29 | | | |

*NML = Normal, PROB = Problem*
*NA = Not Appropriate*

**G** PROBLEMS *(List all problems checked in Section F, including those treated this visit and E3, if checked)*

| Problems (Use problem No. from Section F) | ICDA Code | Treated this visit | Referred and to whom |
|---|---|---|---|
| | | ☐ | ☐ |
| | | ☐ | ☐ |
| | | ☐ | ☐ |
| | | ☐ | ☐ |
| | | ☐ | ☐ |

*(List each problem in this section on Medical Referral sheet)*

**H** COMMENTS

**I** IS SCREEN COMPLETE? 1st Visit 1 ☐ 2nd Visit 2 ☐ Incomplete 3 ☒

If Screen is Incomplete indicate reason:

Signature ____________ MD 1 ☐ PNP 2 ☐ Other 3 ☒ ____________

*Keep first 2 copies until screen complete. Upon completion, return second copy to project.*

N

# PIERCE COUNTY REJECTS

Date ______________

| Name and Pic Code | Form Number | Screen Date | Problem | Solution |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
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| | | | | |
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| | | | | |
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| | | | | |

## NAME AND/OR PIC CODE CORRECTION

## PIERCE COUNTY

1. Date correction requested

2. Child's name:

LAST FIRST

From:

LAST FIRST

To:

3. Pic code:

From:

To:

NOTE: All screen and problem sheets will be corrected for this child.

# APPENDIX C

# PROJECT PROCEDURES

# APPENDIX C-1

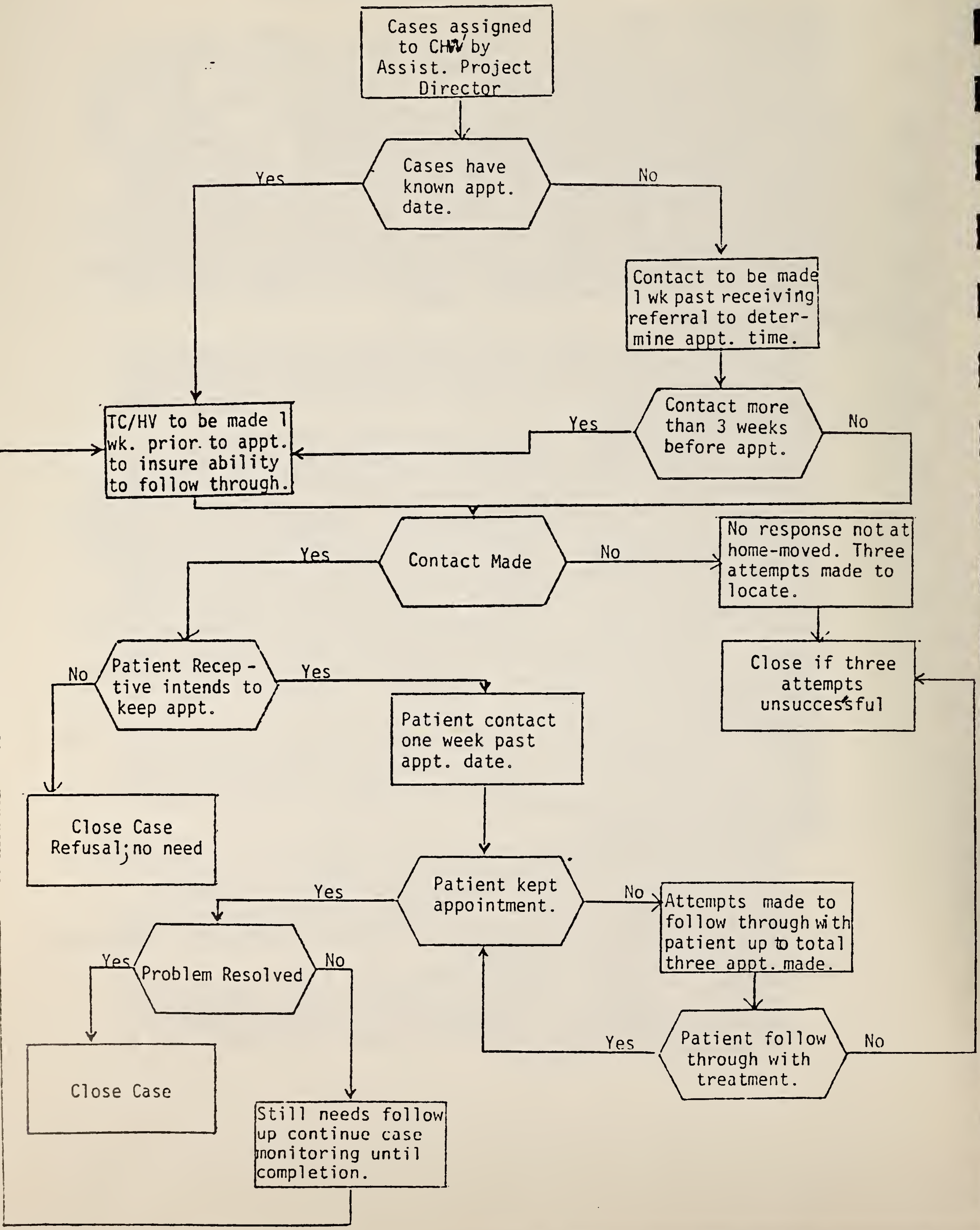
## OUTREACH AND FOLLOW-UP
## METHODOLOGIES

## OUTREACH AND FOLLOW-UP METHODOLOGIES

I. Medical referral forms are reviewed and checked for completeness and legibility by RN. Cases will also be checked by a clerk to determine if they are in the control group, are repeats or are new cases. The RN will also initate case monitoring record (see inclosure), a master file card, rescreen card and a tickler card for the outreach worker. They will then be given to assistant project director for assignment to community health worker. Community health workers will be assigned to specific doctors offices, Community Clinic and Well Child Clinic. This assignment will be made to reduce travel over the entire county and to reduce number of workers contacting each physician office. The community health worker will then receive cases from those offices they are assigned. The assistant project director will review all cases assigned and assist community health worker in the follow-up methodology. The estimated number of new cases per week is eleven (11) per outreach worker.

II. Contact Methodology
   A. Mail Contact: Mail contact will not be used due to past experience with poor response rates. One experience resulted in only two (2) return responses out of forty-four (44) requests for signed consent form returns by mail.
   B. Pre-Appointment Contact: Home visits will be made if patient has no phone. Pre-appointment contact will be made on all cases who have phones, one week prior to the need for treatment/follow-up. Telephone call/home visit will be made to determine if patient is aware of appointment and will be able to keep appointment. Transportation will also be arranged if appropriate. Patient will also be told that a contact past appointment will occur. If appointment time is not clearly indicated on form then telephone call/home visit will be made within one week past receiving referral to determine from patient when child is to return for treatment/follow-up. If no more than three weeks between initial contact and appointment: no further pre-appointment contact is necessary. If more than three weeks between initial contact and appointment then another contact (telephone call/home visit) one week prior to appointment should be made.
   C. Transportation: Community health worker will determine on pre-appointment contact if transportation is needed. CHW will report patient name, address, appointment time to record clerk who will help the messenger driver keep a schedule of requested appointment. Messenger driver will notify CHW of past appointment if appointment was kept.
   D. Past Appointment Contact:
      1. Patient is again contacted one week past appointment to determine if appointment was kept and if problem was resolved. If unable to determine status of problem from patient then MD contacted by assistant project director. If problem needs continued care then case monitoring continues without continued contacts before appointment, until case monitoring is complete.
      2. If unable to contact patient by phone, then a home visit will be initated. If unable to contact in home past three visits, patient case will be closed. If patient moves, an asserted attempt to locate will be initated. Assistant project director will call MD for new address if available.

# CASE MONITORING FLOW


Cases assigned to CHW by Assist. Project Director
Cases have known appt. date.
Yes
No
Contact to be made 1 wk past receiving referral to determine appt. time.
Contact more than 3 weeks before appt.
Yes
No
TC/HV to be made 1 wk. prior to appt. to insure ability to follow through.
Contact Made
Yes
No
No response not at home-moved. Three attempts made to locate.
Close if three attempts unsuccessful
Patient Receptive intends to keep appt.
No
Yes
Patient contact one week past appt. date.
Close Case Refusal; no need
Patient kept appointment.
Yes
No
Attempts made to follow through with patient up to total three appt. made.
Problem Resolved
Yes
No
Patient follow through with treatment.
Yes
No
Close Case
Still needs follow up continue case monitoring until completion.

# MASTER CARD

I. Tickler Cards - Community Health Workers (see sample card)
Each CHW will maintain a tickler file by date. The card will be used as a follow-up system for case monitoring. The tickler card includes the child's name, parent or guardian, address, phone number and date of birth of the child. The cards will be filed by the month that follow-up is due, i.e., follow-up appointments, annual rescreens and infant rescreens.

II. Master File Cards (see sample cards)
Two master file card systems will be maintained:

A. A master file card will be maintained in the Nursing Division master file system. It will include the child's name, address, child's date of birth and will indicate that there is a child's record with the EPSDT project. These cards are filed alphabetically.

B. A master file card will also be maintained in the Project Center. It will include the child's name, address, date of birth, parent or guardian, and will indicate in which group the record is filed: 1. control group, 2. experimental screening, 3. screening and referral, 4. referral and case monitoring. It will also contain date of service (date of screening) and provider (private doctor, community clinic or health department clinic). These cards are filed alphabetically.

As children have repeat screenings completed these cards will be pulled and the new date of screen will be added. Any change in status of record will be updated on card.

III. Rescreen Tickler Cards (see sample card)
A tickler card system will be maintained in the Project Center which will include the child's name, address, date of birth and will indicate which group the record is filed: 1. control group, 2. experimental screen, 3. screening and referral, 4. referral and case monitoring. It will also include date of service (date of screening). These cards will be filed by date of service. They will be used to monitor infant rescreens and annual rescreens of project children.

I. Child Health Record (See sample record)

A Child health record will be completed on all children who have been referred by providers and will be followed up by CHW's. The record will include the child's name, address and zip code. On the left side of the record the medical referral form is attached. On the right side of the record family record sheets are attached.

A. Recording on Family Record Sheets

1. Record everything of importance related to case monitoring:

   a. Home visits (HV)

      A HV will include contact with the child's parent or guardian. Record the parent or guardian's response, i.e., receptive, non-receptive, could not get in door, etc.

   b. Telephone calls (TC)

      Record all TC's that relate to case monitoring, i.e., to make appointments for follow-up treatment, to contact provider offices regarding child, etc.

   c. Record all conferences regarding case monitoring, i.e., contacting messenger-driver to arrange transportation to appointments, conference with supervisor for assistance on difficult situations, etc.

2. Record objective information, do not include subjective information, i.e., house dirty, suspect child abuse, etc.

3. Recording should be short and consise and include facts pertinent to case monitoring. Record that which will be helpful to others when reading the record.

4. Be careful not to make judgements or question mother and/or guardian's ability.

# FAMILY RECORD

STATE OF WASHINGTON
DSHS-HEALTH SERVICES DIVISION

.ie……………………………………………………………………………………

| Address | Directions or Apartment Number | Phone |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |

## FAMILY ROSTER

| Names and Relationship | Sex | Birthplace | Birth | Death | Remarks (Indicate if Veteran) |
|---|---|---|---|---|---|
| Husband | | | | | |
| Wife (maiden name) | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
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| | | | | | |
| | | | | | |
| (Others in household) | | | | | |
| | | | | | |
| | | | | | |

## SUMMARY OF SERVICES

| Name of Individual | Code | Service | Diagnosis | Opened | Closed | Reason for Discharge |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
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| | | | | | | |
| | | | | | | |

DSHS 13-117 (X) 11-72

## EMPLOYMENT

| Name of Individual | Date | Occupation | Where Employed and Remarks |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

## SOCIAL SERVICE INFORMATION

| Name of Individual | Date | Agency and Remarks |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |

## SOCIAL DATA

(Social, economic, education factors, attitudes, plans, progress)

| Date | Race | Religion | Nationality |
|---|---|---|---|
| | | | |
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| | | | |
| | | | |

(Add continuation sheet if necessary)

# APPENDIX C-2

## CARD SYSTEM

# CARD SYSTEM

## (Master File and Community Health Worker Tickler)

Master File Cards - (see sample card)

Two master file card systems will be maintained:

1) A master file card will be maintained in the Nursing Division master file system. It will include the child's name, address, child's date of birth and will indicate that there is a child's record with the EPSDT Project and the date of service. These cards are filed alphabetically.

2) A master file card will also be maintained in the Project Center. It will include the child's name, address, date of birth, parent or guardian, and will indicate in which group the record is filed: 1. control screen, 2. experimental screen, 3. screen completion, 4. referral, and 5. case monitoring. It will also contain date of service (date of screening or medical referral), provider (private doctor, community clinic or health department clinic), and number of case monitor when appropriate. These cards are filed alphabetically.

As children have repeat screenings completed these cards will be pulled and the new date of screen will be added. Any change in status of record will be updated on card.

Community Health Worker Tickler Card - (see sample card)

Each Community Health Worker will maintain a tickler file by date. The card will be used as a follow-up system for case monitoring. The tickler card includes the child's name, parent or guardian, address, phone number and date of birth of the child. The cards will be filed by the month or day that follow-up is due, i.e., follow-up appointments, annual rescreens and infant rescreens.

(CHW Number)

Name SMITH, John (Last) (First)

Address 4445 East 178th 98409

Phone #

Date of birth 7/6/76 Sex: M. F. Color: W. C. Ch. J.

Father or husband Mother Mary Jones

| Type of Record | Date Opened | Where Filed | Date Closed |
|---|---|---|---|
| Control | 6/7/77 | Dr. or Clinic | |
| or Screen Screen Completion | | | |
| or S & R | | | |
| or R & CM | | | |

DEPT. OF SOCIAL & HEALTH SERVICES
HEALTH SERVICES DIVISION
INDIVIDUAL INDEX CARD

DSHS 13-104(X) 10-73 SAMPLE - MASTER FILE - PROJECT CENTER

---

SAMPLE - CHW TICKLER

SMITH, John
Parent - Mary Jones
4445 East 178th 98409
555-8891
B.D. 7/3/76

---

Name SMITH, John (Last) (First)

Address 4445 East 178th 98409

Date of birth 7/6/76 Sex: M. F. Color: W. C. Ch. J.

Father or husband Mother

| Type of Record | Date Opened | Where Filed | Date Closed |
|---|---|---|---|
| | DATE | EPSDT | |
| | | | |
| | | | |
| | | | |

DEPT. OF SOCIAL & HEALTH SERVICES
HEALTH SERVICES DIVISION
INDIVIDUAL INDEX CARD

DSHS 13-104(I) SAMPLE - MASTER FILE - NURSING DIV.

# APPENDIX C-3

# CASE MONITORING FLOW CHART

# CASE MONITORING FLOW CHART

1. Cases are assigned to the CHW's by the Assistant Project Director. If a client has previously been case monitored he/she is assigned to the same CHW. The Assistant Project Director reviews all cases to be monitored and assists community health workers in follow-up methodology. The estimated number of new cases per week is eleven (11) per case monitor.

2. Cases with known appointment dates are contacted by telephone call or home visit one week prior to the appointment to determine if the appointment will be kept and whether or not transportation is necessary. (Needed transportation will be arranged with the messenger/driver. See transportation methodology.) If the appointment date is not known, contact is to be made within one week of receiving the referral to determine the appointment time and/or to encourage the family to make an appointment and keep it. After this contact and if the appointment is more than three weeks away, the case worker will again make a telephone call or home visit one week prior to the appointment to determine if the appointment will be kept and whether or not transportation will be needed.

3. At the time of contact, the patient may be either receptive or not receptive to keeping the doctor appointment. If the family is not receptive, the case is closed as "refusal" or "no need," and a refusal letter is sent to the doctor to inform him that our attempts to encourage the family to follow through with care or screening were unsuccessful. If the patient is receptive and intends to keep the appointment, the caseworker contacts the patient one week after the appointment date to learn what happened at the appointment.

4. If the patient kept the appointment and the problem was resolved, the case can be closed (#1 "treatment/immunization complete".) If the appointment was kept but the problem was not yet resolved, the CHW continues cases monitoring until the problem has been resolved (#1 "treatment/immunization complete", #2 "treatment terminated-maximum benefit achieved", or the condition is #3 "still under treatment 6 months after referred".) If the problem still requires

case monitoring, steps three through five are followed.

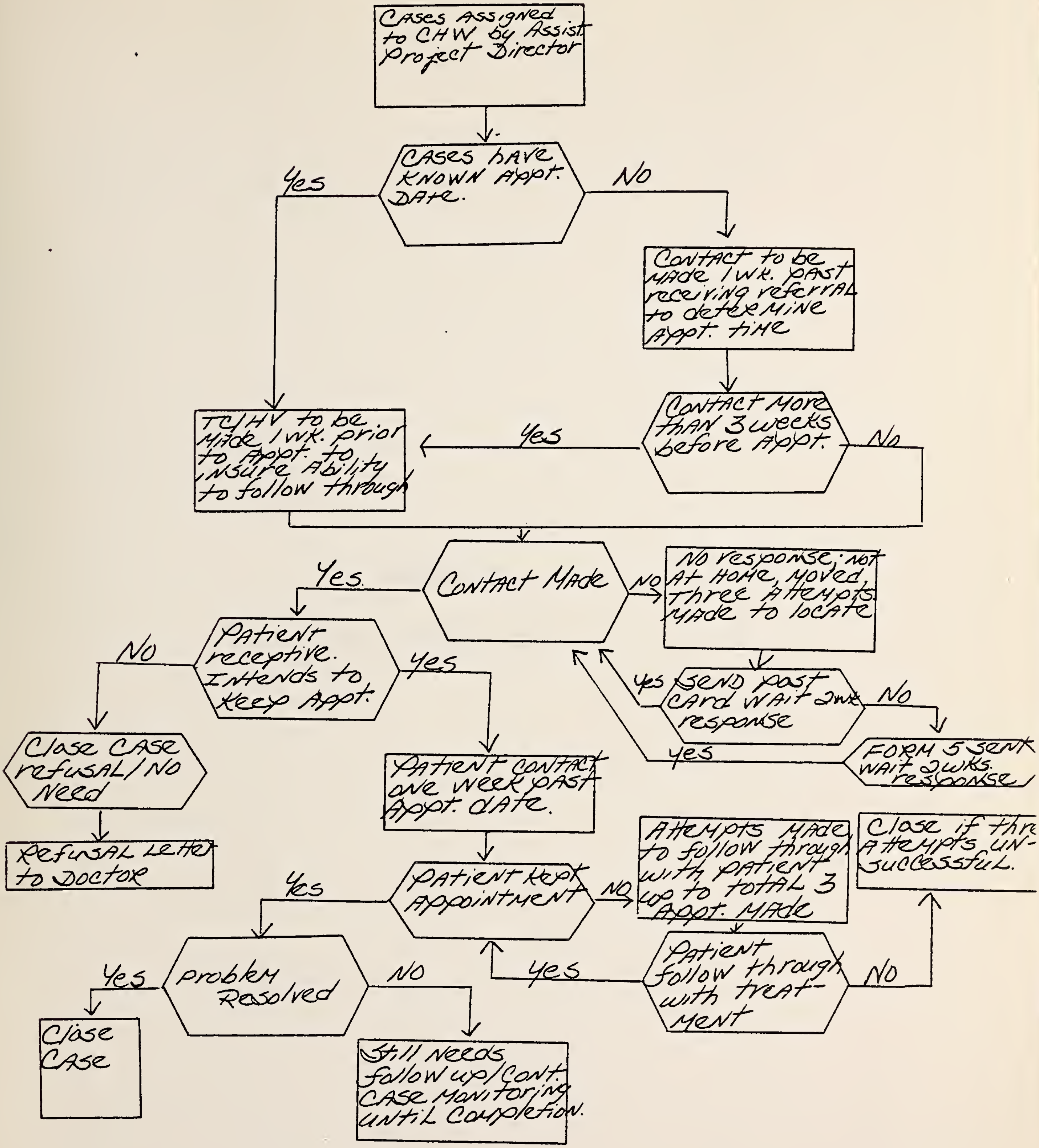
5. If the patient did not keep the appointment, the CHW will make three attempts to encourage them to follow through with care. A patient who does not follow through with care after three contacts is closed as "refused treatment" (or "unable to locate," or "moved".) If after encouragement the patient then follows through with care, procedure in step four is followed.

6. All problems are to be monitored until closed for some specific reason.

7. If the CHW has had no response after three attempts to contact the family, a post card is sent informing the family of the attempts to contact them and asking them to contact the caseworker. "Address correction requested" may be noted on the card. If it appears that the patient has moved (either by not home visit) or by return of the card, the assistant project director may contact the provider's office for information regarding a new address and/or telephone number or a message phone number. If after two weeks there is no response from the post card, a form 5 letter is sent. If within two more weeks there is still no response, the case is closed. If a response is received from either the post card or the form 5 letter, the case is monitored according to steps two through five.

8. If a screening completion is needed, the methodology is the same as for problem follow up except a form 5 letter is not sent.

# CASE MONITORING FLOW CHART


Cases assigned to CHW by Assist Project Director
Cases have known Appt. Date.
Yes
NO
Contact to be made 1 wk. past receiving referral to determine Appt. time
Contact more than 3 weeks before Appt.
Yes
No
TC/HV to be made 1 wk. prior to Appt. to insure ability to follow through
Contact Made
Yes.
NO
No response; not at home, moved, three attempts made to locate
yes
Send post card wait 2 wk response
No
yes
Form 5 sent wait 2 wks. response
Patient receptive. Intends to keep Appt.
NO
yes
Close case refusal/No Need
Refusal letter to doctor
Patient contact one week past Appt. date.
Patient kept appointment
Yes
NO
Attempts made to follow through with patient up to total 3 Appt. made
Close if thre attempts un-successful.
Patient follow through with treat-ment
yes
NO
problem Resolved
Yes
NO
Close Case
Still needs follow up/Cont. case monitoring until completion.

# APPENDIX C-4

# MEDICAL REFERRAL FORM

# MEDICAL REFERRAL FORM

## TOP SECTION

Identifying data to match screening information sheet. Date of screen matches date of service on Screen Form 2.

## SCREENER SECTION

Each problem in Section G of Screening Form 2 will be listed with ICDA Code and problem description. This description should be consistent with the problem area checked in Section E or F.

Whether problem is new or previous known under care or not under care may be optional.

If problem is referred to another, Medical Data Coordinator will note in comments section, CM#___ and Form 4, in red pen or pencil. This will instruct Record Clerk to begin case monitoring chart and include a letter to the doctor or agency to whom the patient is being referred.

Problems which are being treated at the time of screening will have the screener/treatment provider section filled in with date, yes or no checked, and a problem status either a, b, c, d. Other items may be optional.

If checked in a, b, c the Medical Data Coordinator may close the problem in the problem status/case closure section at bottom. (If none of the problems require case monitoring the date case closed will be filled in as the screening date. Community Health Worker number at the top right corner will be 00000 and the last digit in this designated area is coded by the Medical Data Coordinator with provider code as follows:

| | |
|---|---|
| High Provider M.D. | #1 |
| Other Provider M.D. | #2 |
| Community Clinics | #3 |
| Public Health | #4 |
| Health Maint. Organization | #5 |

Problems still under care by the screening provider will be case monitored and the Medical Data Coordinator will indicate need in comments by CM#___ problem with red pen or pencil.

If the problem was E3 or 30, need for further Immunizations, the screener section with ICDA as XXXX, problem description, Immunization need and referred to,_______.

The provider should also complete the Immunization follow-up section to the left of comments. This however, may be done by the Community Health Worker when she does case monitoring for the identified problem.

All copies must be legible. Medical Referral will remain with Screening Form 2 for corrections or additions as necessary.

Those requiring no additional information are initialed in right upper corner and forwarded to the Record Clerk.

Those needing additional information are routed to the Assistant Director.

# APPENDIX C-5

## SCREEN COMPLETION PROCEDURE

## SCREEN COMPLETION PROCEDURE

Screen Completion (No Medical Referral)

1. Put Form 2 (pink) in patient file.
2. Enter patient's name on Screen Completion list
3. When closed enter date of closure on list and send Form 2 (pink) to HSRI.

Screen Completion with Medical Referral, no Case Monitoring

1. Put Form 2 (pink) in patient file
2. Put Medical Referral, HSRI Copy 1 & 2 (Green & Blue) in Screen Completion file and hold until Screen Completion is closed.
3. When Screen Completion is closed, send Form 2 (pink), HSRI 1 (green) and HSRI 2 (blue) to HSRI.

Screen Completion with Medical Referral and Case Monitoring

1. Put Form 2 (pink) in patient file.
2. Put HSRI 1 (green) in Screen Completion file, hold until Screen Completion is closed.
3. When Screen Completion is closed send Form 2 (pink) and HSRI 1 (green) to HSRI.
4. HSRI 2 (blue - in patient file) is to be sent when Case Monitoring is completed.
5. If Case Monitoring is finished on Medical Referral before Screen Completion is closed hold HSRI 2 (blue) with HSRI 1 (green) in Screen Completion file.

N

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# APPENDIX C-6

## PROCEDURE FOR RESCREEN FOLLOW-UP

# PROCEDURE FOR RESCREEN FOLLOW-UP

## Initial Screen

Record is received from provider

Record Clerk makes:
1. Rescreen tickler card
2. Rescreen follow-up form

Tickler card is filed in month due
Rescreen follow-up form is filed alphabetically

Last week of month prior to date rescreen is due:

Record clerk will:
1. Pulls all rescreen tickler cards for next month
2. Pulls all rescreen follow-up forms
3. If current - file in next appropriate month
4. If not, give to community health worker

See "CM rescreen" procedure

When rescreen follow-up sheet is completed, Community Health Worker returns to the Records Clerk (completed meaning closing number and date entered on form.)

Record Clerk:

1. updates rescreen tickler
2. if further rescreens necessary, file in next appropriate month
3. if closed i.e., no further rescreen follow-up to be done (by parent request, if child is over 1 year or cannot locate) file alphabitically in closed file with rescreen tickler card stapled to sheet.

## Rescreen/Other/Annual (Under 1 year)

1. Pull rescreen tickler card and update

When case monitor case closed:
1. pull rescreens and rescreen tickler cards
2. do statistics on 1, 6, 7, 8, 10, 11
3. file in closed file (alphabetically)

# PROCEEDURE FOR RESCREEN FOLLOW-UP

## A. INITIAL SCREEN

Record Clerk (RC) makes:

1. Rescreen tickler card
2. Rescreen follow-up form (with Community Health Worker (CHW) tickler card)
3. Tickler card is filed in month due
4. Form and CHW Tickler card is given to CHW (after being geographically assigned by Data Clerk)

## B. INFANT RESCREEN

Record Clerk:

1. Pulls rescreen tickler card and updates
2. If screen does not fit in periodicity system (between #4 and #5 screen) circle in red and put in nearest date.
3. Record Clerk will initiate routing form when Rescreen is received, with appropriate changes (i.e., name, address, date of screen) and give to CHW

## C. CASE MONITOR (CHW) METHODOLOGY

1. Makes telephone call if possible, leave message if necessary
2. Tries one or two home visits (leaves note if nobody at home)
3. Sends post card
4. Contacts family to see if child has had recent screens or any since our first one on the child. Ask if child is still on coupons, if address and phone are current and if they need transportation.
5. Informs parent/guardian of childs privilege of having periodic screens.
6. Encourages follow-up with screenings (bearing in mind the state schedule and the child's doctor's schedule.
7. Hold until 1 year old even if unable to locate
8. Check with doctor for new address.

## D. CLOSURE

1. CHW will determine closure code by last screen
2. Code #1 or #10 must be approved by Assistant Director
3. CHW keeps case open until child is 1 year of age if code 6, 7, 8, 11, or 12 are circled (#12 Doctor's schedule does not coincide with state's schedule)
4. Record Clerk pulls tickler card, adds closure code to right bottom corner
5. Record Clerk files Rescreen Form and tickler card alphabetically in separate closed files.
6. Record Clerk does statistics.

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## E. ANNUAL RESCREEN

Record Clerk:

1. Assigns by original geographic areas. (4 CHW's)
2. Completes Rescreen Follow-up form as for infant rescreens listing only one date due in "1st" column.
3. Children are eligible for annual rescreen one year and one day (1 year/ 1 day) after previous screen.
4. State Medicaid profiles will be attached to children's records.
5. Non-project (NP) screens will be noted on master file card as:

   Type of Record - Screen
   Date Opened - Date of Screen
   Where Filed - NP
   Date Closed - Date of closure.
   Mark master file card with"ARS" in blue at top right of card indicating annual rescreen.

CHW:

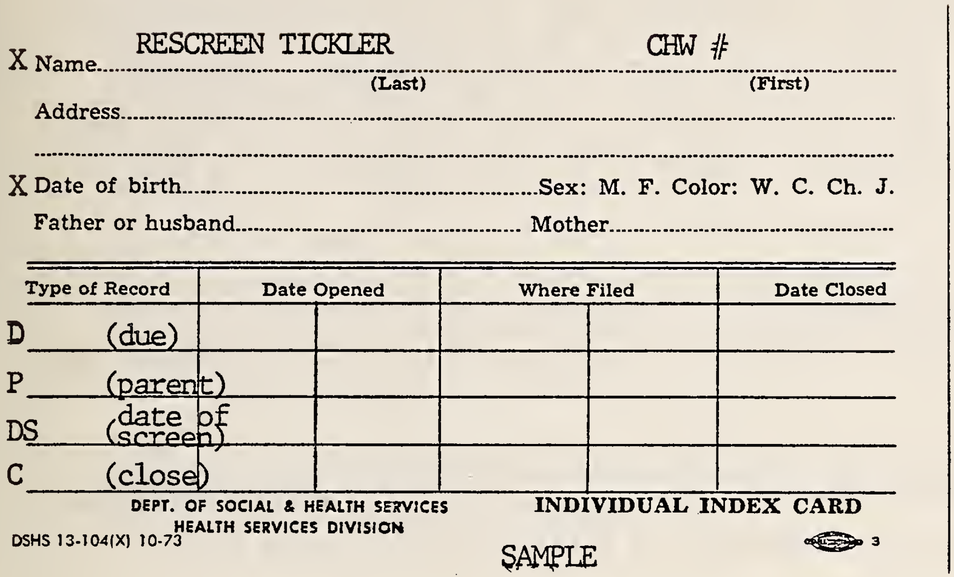
1. Use same methodology as for infant rescreen with the exception of closing, which is done after contact is completed.

# RESCREEN FOLLOW-UP SHEET

Record Clerk completes on initial screen:

1. Community Health Worker
2. Community Health Worker's number
3. Child's name
4. Family name
5. Address, zip
6. Phone number
7. Birthdate
8. Screening provider
9. Status - opened or closed
10. Screening dates - 1st, 2nd, 3rd, 4th, 5th
    D = Date due
    P = Date screened per parent
    DS = Date of screen per project
    C = Closing code

## RESCREEN TICKLER CARD



X Name RESCREEN TICKLER (Last) CHW # (First)

Address

X Date of birth Sex: M. F. Color: W. C. Ch. J.

Father or husband Mother

| Type of Record | Date Opened | | Where Filed | | Date Closed |
|---|---|---|---|---|---|
| D (due) | | | | | |
| P (parent) | | | | | |
| DS (date of screen) | | | | | |
| C (close) | | | | | |

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**INDIVIDUAL INDEX CARD**

3

SAMPLE

Record Clerk completes card with:

1. Name of child
2. Date of birth
3. Community Health Worker's number.
4. Type of record:
    - D = Date due
    - P = Date screened per parent
    - DS = Date of screen per project
    - C = Closing code

## CASE MONITOR FLOW CHART FOR RESCREENS

1. The computer print-out of rescreens due is received from Texas. A separate form will be completed for each child on the list and all forms assigned to one caseworker will be kept in a folder for that caseworker. Names may appear on rescreen lists more than once. If so, the previous form on that child will be pulled from the rescreen file and all notes will be made on that same form.

2. The data clerk checks the master file to determine the current status of the child and to verify identifying information (name, medicaid number, etc.)

3. The data clerk determines from the master file card whether or not the child has had a recent rescreen. If he/she has, no follow up is needed and #1 (treatment/immunization complete) is marked on the rescreen list.

4. If the child has not been rescreened, a CHW is assigned. If a CHW has previously followed the child, he/she will be assigned to that same CHW. Information regarding rescreening of a child previously open to service should be noted both on the rescreen list and on the record. If comments are lengthy, write in the record (make a brief notation of the situation on the rescreen list), and put "see record" on the rescreen list. Recording on record: (example- "10-6-77, on rescreen list. TC mother reports that child has appointment 10/9/77 with PMD. Has no problem with transportation.") On rescreen list put "appointment 10/9/77--has transportation."

5. Contact with the family should be attempted within one week of case assignment to the CHW. If there is no response after three attempts to contact the client, a post card is sent to the family suggesting the need for rescreen of the child and asking the family to contact the CHW. If no response is received within two weeks after sending the card, the record is closed as #7 (unable to contact). If a family is previously known to have moved or attempts to contact them have been unsuccessful, it is not necessary to go through these attempts again unless new locating information is available. Merely make a note of the previously known status on the rescreen form.

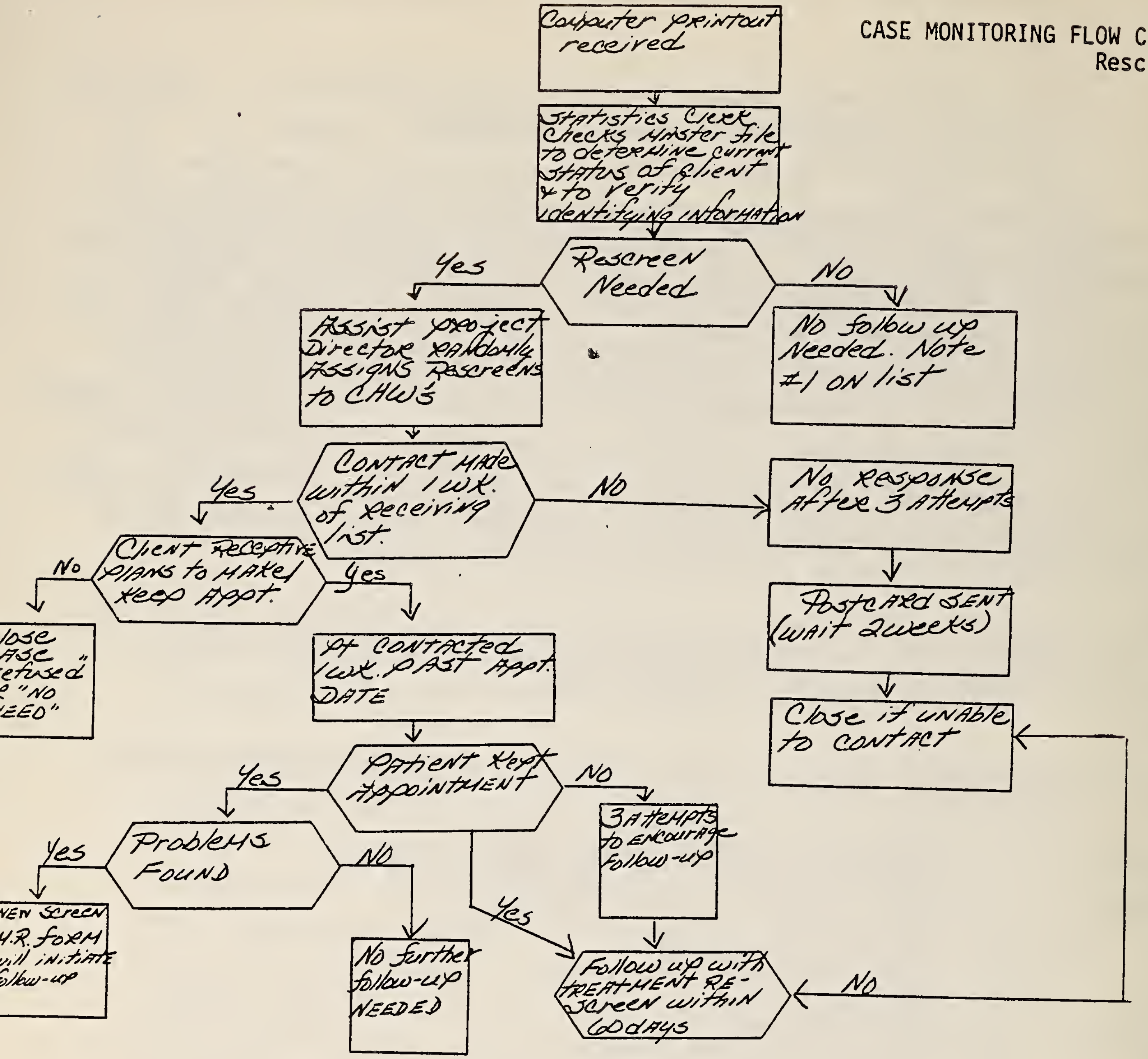
6. Contact with the family should disclose one of two situations. A. The client is unreceptive and the case is closed as "refused" or "no need." B. If the client is receptive and plans to make or keep the doctor's appointment, the CHW checks with them one week after the appointment date to check the results of the doctor's visit. If the patient kept the appointment and problems were found, the new screening form and medical referral will initiate CHW follow up. If no problems were found, there is no further follow up necessary and the re-screen is closed as #1. If the patient did not keep the appointment, three attempts will be made to encourage them to follow up. If the contact is successful and the appointment is the kept, the patient is contacted one week after the appointment date and follow-up is made accordingly. (Problem refers client for follow up, no problem--close.) If the three attempts to contact are unsuccessful, the case is closed as #7 (unable to contact.)

7. Rescreens must be completed within 60 days. If not completed, case is closed as "unable to contact" or "refused", etc.

8. The following codes will be used to designate the status of those children on the rescreen list:

    1. Treatment or immunization completed
    2. Treatment terminated (maximum benefit achieved)
    3. Under treatment 6 months after referred
    4. Condition noted, treatment not advised
    5. Treatment not available
    6. Family moved
    7. Unable to contact
    8. Refused treatment
    9. Repeated appointment failure
    10. No longer eligible

## CASE MONITORING FLOW CHART- Rescreens



Computer printout received
Statistics Clerk checks Master file to determine current status of client & to verify identifying information
Rescreen Needed
Yes
No
Assist project Director randomly assigns rescreens to CHW's
No follow up Needed. Note #1 on list
Contact made within 1 wk. of receiving list.
Yes
No
No response after 3 attempts
Client receptive plans to make/keep appt.
No
Yes
Postcard sent (wait 2 weeks)
lose ase "refused" "No eed"
Pt contacted 1 wk. past appt. date
Close if unable to contact
Patient kept appointment
Yes
No
3 attempts to encourage follow-up
Problems Found
Yes
No
Yes
New screen H.R. form will initiate follow-up
No further follow-up needed
Follow up with treatment re-screen within 60 days
No

# APPENDIX C-7

## LIMITED CASE MONITORING
## PROCEDURE

## Limited Case Monitoring Procedure - CHW's

1. Cases are assigned to the two caseworkers by geographic location. Half of the county to each caseworker.)

2. Cases with known appointment dates are contacted by telephone call or home visit 1 week prior to the appointment date to determine if the appointment will be kept and whether or not transportation is necessary. (See transportation methodology.)

3. If the appointment date is not known, contact is made within 1 week of receiving the referral to determine the appointment time and/or to encourage the family to make an appointment and keep it. After this contact, and if the appointment is more than three weeks away, the caseworker will again make a telephone call or home visit one week prior to the appointment to determine if the appointment will be kept and whether or not transportation will be needed.

4. If the caseworker has had no response after three attempts to contact the family, a post card is sent informing the family of the attempts to contact them and asking them to contact the caseworker. "Address correction requested" may be noted on the card. If it appears that the patient has moved (either by not-home-visit or by return of the card), the assistant project director may contact the provider's office for information regarding a new address and/or telephone number or a message phone number. If after two weeks there is no response from the post card, a form 5 letter is sent. If within two more weeks there is still no response, the case is closed. If a response is received from either the post card or the form 5 letter, the case is monitored according to steps two and three.

(The above methodology is identical to extended case monitoring.)

5. At the time of contact the patient may be either receptive or not receptive to keeping the doctor appointment. If the family is not receptive the case is transferred to pending (as refused). (08) If the patient is receptive and intends to keep the appointment the caseworker routes the case to "pending." No contact will be made after the appointment date (until four months later.) ~~The tickler card for the patient will be placed in the caseworker's file box at a date 4 months from the time the patient is transferred to "pending" status.~~ The caseworker will route the record to the secretary in the usual manner noting "Pending" and the suspected closure code in the record. The secretary will write "p" and the date in pencil on the master file care and will not pull any (blue) form for Texas.

6. At 4 months Texas will send a list of clients due for follow-up. The caseworker will then contact the family to determine their follow-up or lack of it. The methodology will be identical to that used for the follow-up on the control group.

7. If contact is made the caseworker will close the case with the appropriate code (see attached) noting the information in the case-monitoring notes used to reach this conclusion. If the caseworker has had no response after three attempts to contact the family a post card is sent informing the family of the attempts to contact them and asking

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them to contact the caseworker. "Address correction requested" may be noted on the card. If it appears that the client has moved, (either by not-home-visit or by return of the card) the assistant project director may contact the provider's office for information regarding a new address and/or telephone number or message phone number. No form 5 will be sent. After three unsuccessful attempts have been made to contact the family the case is closed as "unable to contact" (07) or "moved" (06).

8. The patient profiles from the Olympia computer will be compared against information obtained from the family.

## Limited Case Monitoring - CHW's

Clarifications:

1. Infant rescreens under the limited case monitoring system will be followed only to the first screen.

2. After October 1st all new cases are limited case monitoring.

3. Be sure to tell the families that an infant is due for 5 rescreens during the first year of life. Because you will make only one good contact with the family, it is important to motivate follow-through in the future as well as for the immediate visit. Continual education regarding the advantages and benefits of preventive health care and follow-up for problems should always be emphasized.

4. Screening completions will be done the in the same manner as in the past.

5. If transportation is necessary the child will be (ideally) taken to only the first visit. If it is necessary to transport further, the case should be transferred to extended case monitoring. It is highly desirable to keep all limited case monitoring cases in that category by informing parents of methods of transportation available to them in the community.

6. ~~Control children will stay in the control group.~~

7. If children have been in the extended case monitoring group in the past, the determination regarding which group they now belong in will depend on how long ago the case was closed. In general, the children very recently closed (and all of those still open) will go into the extended case monitoring category. Children whose cases were closed longer ago will be placed in the limited case monitoring group.

8. All limited case monitoring children will be identified by a green dot placed on all of the papers and cards related to those children.

9. It is important not to voluntarily explain to people that they are now in the limited case monitoring system as this may change our statistics. In the same manner, providers, CHN's etc., may alter their follow-up and referral procedures if they know that the child will not be in the extended case monitoring group. If the question is asked, it is permissible to explain the situation using only as much information as is necessary to answer the person's question.

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# APPENDIX D

# COSTING METHODOLOGY

# APPENDIX D-1

## METHODOLOGY FOR CALCULATING CASE MONITORING COSTS

### A. Numerator Calculations: Cost per Activity

As part of its evaluation effort, project staff kept track of all time and costs incurred for EPSDT related activities. The principal components of this were daily time logs maintained by all operational personnel, plus routine accounting records for both direct and indirect costs. The results of these calculations are discussed in relevant chapters throughout this report.

Calculations distinguished between special research costs and those that would have been incurred for routine program operation. All planning and program development costs were excluded, for example, because they would not be necessary at the local level in a statewide program. Data collection costs other than those for routine case management were excluded: these consisted of keypunching to obtain Medicaid profiles, delivery and pick-up of data forms by the project van, and the checking and coding of data forms by one of the project's nurses. All HSRI costs were excluded for the same reason. Finally, we excluded costs incurred by the dental hygienist and by a project nurse working at the family planning clinic since these were screening costs that would normally be charged directly to Medicaid. The results of these assumptions are expressed in Chart D-2.

Project personnel with operational responsibilities kept daily time logs. These were summarized periodically and forwarded to HSRI along with salary figures and indirect costs for the period being analyzed. The summary time sheet for the period between October 1, 1977 and April 30, 1979 is shown in Table D-3.

Staff time, in general, was divided into three categories, as shown in Table D-4. The first category included all direct case monitoring time, divided up as shown in the table. CHWs spent exactly 50% of their time on these activities between October 1, 1977 and April 30, 1979.

The second category included essential EPSDT activities such as staff meetings and training that would be required for a statewide program but which were not directly linked to case monitoring. These activities required 20.9% of CHW time. The final, "non-EPSDT" category included activities such as research and control group follow-up that would presumably not occur statewide; these consumed 29.1% of CHW time. (In the early months, CHWs had small case loads and occasional free time and this "down" time was also recorded under "non-EPSDT".)

The methodology used to convert time logs to costs is described in the EPSDT Evaluation Handbook*. The first step in this procedure was to distribute unallocated time and expenditures to reflect true operational costs. Time spent on "other EPSDT" would be required for routine operation of a statewide program and so the cost estimate for arranging rescreens, for example, needed to reflect this general EPSDT overhead. "Other EPSDT" time was, therefore, distributed among the case monitoring categories in proportion to their relative importance. During the period between October 1, 1977 and April 30, 1979, CHWs spent 34.6% of their monitoring time on encouraging rescreens, 3.4% on screening completions, 55% on medical problem follow-up, 5.7% on immunizations, and 1.4% on dental follow-up. These proportions were applied to the amount of time spent on "other EPSDT" activities, and the latter were distributed accordingly.

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*Health Services Research Institute. EPSDT Demonstration Model Evaluation Handbook, 1975.

During the period under study, the project incurred a direct cost of $65,350 for its case monitors, of which 70.9% ($46,333) went for activities that would be required for a statewide program. Since 55% of direct monitoring time was spent on medical problem follow-up, the direct cost of this follow-up for CHWs was $46,333 x .55, or $25,483. Similar calculations were, of course, required for each activity and for each of the four personnel categories listed in Table D-3.

The final step in the cost calculation was to distribute indirect costs in the same general manner as we distributed direct costs. These totaled $20,870 and, once again, 70.9% ($14,797) was attributed to routine EPSDT activities and 29.1% ($6,073) to non-EPSDT. Within EPSDT, this $14,797 was distributed to each monitoring activity in proportion to the time allocation of CHWs.

## B. Denominator Calculations: Number of Activity Units

Once the total cost for each activity had been determined, it was necessary to apportion this cost by the number of problems or cases involved. The cost per problem was analyzed in several ways, as shown in Table D-5. We will illustrate using the row labeled "all problems", but the methodology described applied to other rows as well.

The first method was to divide the total cost for problem follow-up by the total number of problems that were monitored during the period being analyzed. In the period under study here, 1,835* referred problems were given extended case monitoring at a total cost of $56,125. The average cost per problem followed was $30.59. For problems given limited monitoring, the cost was substantially lower at $19.26 per problem. The cost portion of the cost effectiveness equation is clearly higher under ECM, but Table A-4 showed greater effectiveness for ECM as well. The remainder of Table D-5 puts these two factors into greater perspective.

---

*This is the number of referred problems arising from screens between October 1, 1977 and April 30, 1979. The data do not indicate when problems were actually worked on, but the method used is unlikely to produce any bias in the results.

The middle two columns of this table show the cost per resolved* problem. These figures are obviously higher because many problems were not resolved. The difference between the ECM figure ($50.93) and LCM ($41.21) is still about $10.00, but on a percentage basis, it is much less (19.1%). The percentage difference is lower because ECM resolved 60.1% of the problems that it followed, while ECM resolved only 47.5%. These figures give us a better picture of the cost effectiveness equation, but they are not complete because they do not take account of the problems that would have been resolved without any case monitoring at all.

During the control phase of the project, 29.3% of all referred problems were resolved "for free", and we may assume that the same results would have occurred during the ECM and LCM phases as well had there not been any case monitoring. Non-monitoring would have resolved 537 of the ECM problems instead of the 1,102 that were actually resolved, so the increment due to monitoring was 565. If the project had been able to predict which 565 would benefit from monitoring, it obviously would have concentrated its resources on them and spent only $30.59 each; but since it didn't know, the cost per extra problem was $99.31. Under limited monitoring, it was $110.98, indicating that in the ultimate analysis, extended case monitoring was just as cost effective on a per problem basis as was limited monitoring.

Other activities were apportioned as described in pertinent chapters of Section Three.

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*This number includes only those that would have been closed with statuses '1', '2', or '4' (see Appendix E). Problems still under treatment after six months are not included.

## CHART D-2: PERSONNEL INVOLVED IN CALCULATION OF CASE MONITORING COSTS

| | Included in Cost Calculations | Excluded from Cost Calculations |
|---|---|---|
| Project Director | | 100% |
| Assistant Director | 100%* | |
| Senior Clerk | 100%* | |
| Clerk Typist | | 100% |
| Statistical Researcher | | 100% |
| Case Monitors | Routine Case Management | Control Group Follow-up; LCM Follow-up; Time at Family Planning Clinic |
| Nurse to Work on Data Forms | | 100% |
| Nurse for Family Planning Clinic | | EPSDT Screening; Coordination and Planning Time |
| Messenger/Driver | Patient Transfers | Errands; Delivery and Pickup of Data Forms |
| Dental Hygienist | | 100% |
| Planner | | 100% |
| Screeners | | 100% |
| HSRI Personnel | | 100% |

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*Except for miscellaneous non-EPSDT activities.

## TABLE D-3: MONTHLY COST DATA

### Tacoma-Pierce County

Month Oct. 1, 1977
Year April 30, 1979

Number of Minutes Worked

| | Administrative/ Supervisory | Case Monitors | Clerks | Messenger/ Driver |
|---|---|---|---|---|
| 1. Annual rescreens | (1,1) | 47,561<br>(2,1) | (3,1) | (4,1) |
| 2. Infant rescreens<br>a) extended monitoring | (1,2) | 58,724<br>(2,2) | (3,2) | (4,2) |
| b) limited monitoring | (1,3) | 6,615<br>(2,3) | (3,3) | (4,3) |
| 3. Screening completions | (1,4) | 11,045<br>(2,4) | (3,4) | (4,4) |
| 4. Medical problem follow-up<br>a) extended monitoring | (1,5) | 154,890<br>(2,5) | (3,5) | (4,5) |
| b) limited monitoring | (1,6) | 24,815<br>(2,6) | (3,6) | (4,6) |
| 5. Immunization follow-up<br>a) extended monitoring | (1,7) | 14,725<br>(2,7) | (3,7) | (4,7) |
| b) limited monitoring | (1,8) | 3,965<br>(2,8) | (3,8) | (4,8) |
| 6. Dental follow-up<br>a) extended monitoring | (1,9) | 3,135<br>(2,9) | (3,9) | (4,9) |
| b) limited monitoring | (1,10) | 1,280<br>(2,10) | (3,10) | (4,10) |
| 7. Family planning (except follow-up) | (1,11) | 45,620<br>(2,11) | (3,11) | (4,11) |
| 8. Orientation/Health Educ. | 6,305<br>(1,12) | 8,985<br>(2,12) | (3,12) | 1,335<br>(4,12) |
| 9. Miscellaneous EPSDT | 116,505<br>(1,13) | 128,010<br>(2,13) | 139,625<br>(3,13) | 70,705<br>(4,13) |
| 10. Non-EPSDT | 42,115<br>(1,14) | 144,555<br>(2,14) | 34,675<br>(3,14) | 103,280<br>(4,14) |
| SALARY | $37,045 | $65,350 | $18,850 | $15,870 |
| INDIRECT COSTS | $20,870 | | | |

## TABLE D-4: DISTRIBUTION OF CHW TIME
## OCTOBER 1, 1977 THROUGH APRIL 30, 1979

| | Percent of Total CHW Time | Percent of Case Monitoring Time |
|---|---|---|
| A. Case Monitoring | 50.0% | 100.0% |
| 1. Annual Rescreens | 7.3% | 14.6% |
| 2. Infant Rescreens | 10.0% | 20.0% |
| 3. Screening Completion | 1.7% | 3.4% |
| 4. Medical Problem Follow-up | 27.5% | 55.0% |
| 5. Immunization Follow-up | 2.9% | 5.7% |
| 6. Dental Follow-up | 0.7% | 1.4% |
| B. Other EPSDT | 20.9% | ---- |
| 1. Orientation/Health Education | 1.4% | ---- |
| 2. Miscellaneous EPSDT | 19.6% | ---- |
| C. Non-EPSDT* | 29.1% | ---- |
| | 100.0% | 100.0% |

---

*Includes time at family planning clinic.

# TABLE D-5: CASE MONITORING COSTS
## OCTOBER 1, 1977 THROUGH APRIL 30, 1979

| | Total | Per Problem/Case Followed | | Per Problem/Case Resolved | | Per Extra Problem/ Case Resolved | |
|---|---|---|---|---|---|---|---|
| | Cost | Number | Cost | Number | Cost | Number | Cost |
| Medical Follow-up | | | | | | | |
| All problems | | | | | | | |
| - extended monitoring | $56,125 | 1835 | $30.59 | 1102 | $50.93 | 565 | $ 99.34 |
| - limited monitoring | 9,766 | 507 | 19.26 | 237 | 41.21 | 88 | 110.98 |
| Immunizations | | | | | | | |
| - extended monitoring | 4,784 | 269 | 17.78 | 124 | 38.58 | 36 | 132.89 |
| - limited monitoring | 1,288 | 81 | 15.90 | 36 | 35.78 | 10 | 128.80 |
| Dental | | | | | | | |
| - extended monitoring | 1,019 | 61 | 16.70 | 31 | 32.87 | (1) | (1) |
| - limited monitoring | 416 | 38 | 10.95 | 18 | 23.11 | (1) | (1) |
| Other | | | | | | | |
| - extended monitoring | 50,322 | 1505 | 33.44 | 947 | 53.14 | 579 | 86.91 |
| - limited monitoring | 8,062 | 388 | 20.78 | 183 | 44.05 | 88 | 91.61 |
| All cases | | | | | | | |
| - extended monitoring | 56,125 | 1197 | 46.89 | 650 | 86.35 | 317 | 177.05 |
| - limited monitoring | 9,766 | 356 | 27.43 | 156 | 62.60 | 57 | 171.33 |
| Rescreen Scheduling | | | | | | | |
| Annual Rescreens | 15,452 | 876 | 17.64 | 120 (3) | 128.77 | 69 | 223.94 |
| Infant Rescreens | | | | | | | |
| - extended monitoring | 19,079 | 1489 (2) | 12.81 | 1103 (4) | 17.30 | 144 | 132.49 |
| - limited monitoring | 2,149 | 235 (2) | 9.14 | 135 (4) | 15.92 | (5) | (5) |
| Screen Completion | 3,588 | 147 | 24.41 | 81 | 44.30 | 21 | 170.86 |

Notes
(1) Case monitoring did not improve resolution rates for dental problems.
(2) These figures are based on the expected number of rescreens through May 1979.
(3) Only rescreens that occurred 12 to 16 months after first screen are counted.
(4) Based on the rescreen rates shown in Table A-1. 'Duplicate' rescreens are excluded.
(5) The rescreen rate was lower for LCM than it was for the control group.

# APPENDIX E

# PROBLEM CLOSURE STATUSES

# APPENDIX E-1

## PROBLEM STATUS/CASE CLOSURE

Definitions of Categories
3/78

| 01 Treatment/Immunization Completed | Source |
|---|---|
| *Treated &/or Referred<br>*Problem Resolved | |
| a) Treated at screen; Problem resolved.<br>No further treatment needed. | Screener |
| b) Referred; child returned & was treated.<br>Problem resolved.<br>No further treatment needed. | Mother |
| c) Referred; Problem subsided; No return visit.<br>Mother called Doctor; Dr. OKed not return. | Mother |
| d) Referred; Mother unsure of problem status.<br>Community Health Worker checks with Assistant Project Director, who checks with Doctor's office.<br>Problem is resolved; Dr. OKs not return. | Doctor's Office |
| e) Referred to other Screener/Treatment Provider Problem Classification categories a or d.<br>i)a Treatment/Immunization Completed<br>ii)d Still under treatment<br>If d, then must also be b, c or d above | "Other" Form 4 |

| 02 Treatment Terminated (Maximum Benefit Achieved) | |
|---|---|
| *Treated &/or Referred<br>*Because of the nature of the problem, it still remains; however, problem is corrected to maximum status possible. | |
| a) Treated at screen; Problem remains.<br>No further treatment needed. | Screener |
| b) Referred; child returned & was treated.<br>Problem remains.<br>No further treatment needed at this time. | Mother |
| c) Referred; Problem remains; No return visit.<br>Mother called Doctor; Dr. OKed not return. | Mother |
| d) Referred; Mother unsure of problem status.<br>CHW/APD checks with Doctor's office.<br>Problem remains; Dr. OKs not return. | Doctor's Office |

e) Referred to Other "Other" Form 4
Screener/Treatment Provider Problem
Classification categories b or d

i)b Treatment Terminated (Maximum Benefit Achieved)
ii)d Still under treatment
If d, then must also be b, c, or d above.

03 Under Treatment 6 Months after Referred Source

*Referred (Treated & referred OK also)
*Further Treatment needed

a)

b) Referred; child returned & was treated. Mother
Further treatment needed.

c)

d) Referred; Mother unsure of problem status. Doctor's Office
CHW/APD checks with Doctor's office.
Dr. says further treatment needed.

e) Referred to Other "Other" Form 4
Scr/TX Provider Prob. Class. d.
Then also a or b above.

04 Condition Noted; Treatment Not Advised

*Treated &/or Referred to Other
*No further treatment needed

a) Never referred; just treated this visit Screener

b)

c)

d)

e) Referred to Other "Other" Form 4
Scr/Tx Provider Problem Class. c.

### 05 Treatment Not Available

*Referred (Treated and referred OK also)
*Needed Treatment Not Completed (OK if further treatment also)

| | Source |
|---|---|
| a) Mother attempts to follow up; BUT | Mother |
| Needed service not available in this community to this child at this time | Appropriate Community Resources |
| b) Mother attempts to follow up; | Mother |
| Needed service is available, BUT | |
| No funding is available in this community to this child at this time, i.e., Medicaid will not pay; family cannot pay their own expense; no other third party payers will pay; no alternative source of financing known | Appropriate Community Resources |

### 06 Family Moved

*Referred (Treated & referred OK also)
*Some Contact with Family by Case Monitor (CHW)

| | |
|---|---|
| Family has moved from Pierce County | Mother OR Reliable Source (CHW name source) |

a) no treatment received after screen
b) treatment was in process

### 07 Unable to Contact

*Referred (Treated & referred OK also)
*Unable to make contact with family

### 08 Refused Treatment

*Referred (Treated & referred OK also)
*Needed Treatment Not Completed (OK if further treatment also)

| | |
|---|---|
| a) Mother appears to be interested in treatment, but doesn't follow through, even with repeated case monitoring; Doctor notified of closure | Mother |

i) Van scheduled twice; still did not return for treatment or go for referral to other Dr. notified of closure

ii) Home visit scheduled by phone, with definite appointment, twice; not home at time arranged
Did not return for treatment or go for referral to other
Dr. notified of closure

| | Source |
|---|---|
| iii) Mother makes 3 appointments and doesn't keep them. | Mother |
| b) Mother doesn't think problem or treatment is important enough to return to visit doctor or to call doctor to check<br>Doctor notified of closure by CHW/APD | Mother |
| c) Mother unsure of problem status OR denies problem or need for further treatment.<br>CHW/APD checks with Dr.'s office.<br>Doctor does want return visit or referral to other.<br>Mother still says "no problem"<br>Dr. notified of closure | Doctor's Office |

09 Repeated Appointment Failure (Include all under 08 a or b after 3/13/78)

10 Other

Rare Exception. OK with Project Director before using; add to list of each CHW & APD & MDC & OE if to be used on regular basis

False Positive

*Referred to Other (Treated & referred OK also)

| | |
|---|---|
| Child diagnosed by Other<br>Suspected problem not confirmed AND<br>No new ICDA Code noted | "Other"<br>Form 4 |

*No blank is marked in Case Monitor - Problem Status/Case Closure section

# APPENDIX E-2

## Grouping of Case Closure Statuses

| Status | Case Retention | Problem Resolution | Case Conversion/ Completion |
|---|---|---|---|
| 0. False Positive | Retained | * | Converted |
| 1. Treatment/Immunization Completed | Retained | Resolved | Converted |
| 2. Treatment terminated/maximum benefit achieved | Retained | Resolved | Converted |
| 3. Under treatment 6 months after referred | Retained | * | * |
| 4. Condition noted; treatment not advised or warranted | Retained | Resolved | Converted |
| 5. Treatment not available | Not Retained | Not Resolved | Not Converted |
| 6. Family moved | Not Retained | Not Resolved | Not Converted |
| 7. Unable to contact | Not Retained | Not Resolved | Not Converted |
| 8-9. Refused treatment/repeated appointment failure | Not Retained | Not Resolved | Not Converted |
| 10. Other | Not Retained | Not Resolved | Not Converted |

*Omitted from both numerator and denominator.

Proportion of cases retained: Proportion of cases in which all problems were closed by status 0, 1, 2, 3, or 4.

Proportion of problems resolved: The number of problems that are resolved divided by the total number of problems (excluding false positives and those still under treatment).

Proportion of cases converted/completed: Proportion of cases** in which all problems were closed by statuses 0, 1, 2, or 4.

**Cases in which one or more problems are still under treatment (status 3) are omitted from both the numerator and denominator.

# APPENDIX F

# DENTAL STUDY

# DENTAL STUDY

SEPTEMBER 1979

Demonstration in Follow-up: EPSDT
(Early & Periodic Screening, Diagnosis & Treatment)

3591 South D Street
Tacoma, Washington 98408

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# DENTAL STUDY

## ABSTRACT/OVERVIEW

This is the final report on the Pierce County (WA) EPSDT Demonstration Project's dental study covering the period of August 1978 through January 1979. The purpose of this study was to describe the effect of the addition of special dental screening services provided by a dental hygienist to the EPSDT screen on the rate of dental problems which are identified for further diagnosis and treatment. Results from this study indicate that the addition of special dental screening significantly increased the proportion of EPSDT screens in which dental problems are found. The study obtained descriptive data on dental health in Pierce County and identified a population at risk for dental disease.

## BACKGROUND AND OBJECTIVES

Although precise data on dental problems in Pierce County is not available, national health status data reveal that oral disease and dental problems are the most widespread human ailments in the United States. More than 95% percent of the American people are affected by dental disease. Tooth decay is by far the most prevalent form of dental disease in the young. It is followed by gum diseases which may begin to appear during the early teens and then progress as one gets older. The average six-year-old has experienced 3.7 decayed teeth, while the average sixteen-year-old has seven decayed, missing or filled teeth. The number of filled teeth among youths is directly related to family income. In fiscal year 1971, expenditures for dental services exceeded $4 billion, and approximately six percent of the health care dollar was spent on dental services. [1]

While the vast majority of infectious diseases can, and are, being prevented by measures which either require no intervention by physicians or their aides or involve a very limited amount of professional time (i.e immunizations and environmental control), with the exception of water flouridation and effective tooth brushing, primary preventive methods are not now available for the prevention of dental disease. In addition, once tooth decay begins, it will not "clear up" with time and bed rest as do many other kinds of diseases. Treatment must be initiated or decay will result in loss of the tooth or serious infection.

Both the prevalence of dental disease and its seriousness if left untreated suggest that referrals for dental problems should constitute a good percentage of the problems referred for treatment under the EPSDT program. According to recent information from the American Dental Association the percentage of dental problems identified at EPSDT screen for further diagnosis and treatment is 45%.[3] However, the percentage of dental problems identified for further treatment in the Washington State research project "Demonstration in Follow-up: EPSDT" in Pierce County is substantially below the national figures. Dental problems constitute 4.0% of the problems identified for further diagnosis and treatment in the project. Even if we correct this figure for the high percentage of infants in the project for whom dental screening is inappropriate, dental problems still constitute only 4.9% of the problems identified for further diagnosis and treatment.

Since, with the exception of two small population pockets, water in Pierce County is not flouridated, it seems unlikely that the figure for dental problems identified is accurate. Rather, Project staff suspect that the dental component of the EPSDT screen has not been well-publicized by the State Medicaid agency, and that it is being overlooked by the private physicians who provide 85% of all EPSDT screens which come in to the project. Consequently, in an effort to obtain more accurate data on dental problems in Pierce County, in August 1978 the EPSDT Demonstration Project contracted with a dental hygienist to provide special dental screening services and dental health education to selected participants in the county. These participants included Medicaid and non Medicaid eligible children who received EPSDT screens through Tacoma-Pierce County Well Child and Adolescent clinics and Medicaid eligible children who received EPSDT screens from private Project providers.

The primary purpose of the study was to describe the effect of the addition of special dental screening services provided by a dental hygienist on the rate of dental problems identified for further diagnosis and treatment. Specifically the objectives were:

1) to compare the referral rate for dental problems among a sample of the EPSDT population with access to special dental screening services with the referral rate for dental problems among the on-going EPSDT Demonstration Project population without access to these services.

2) to obtain descriptive data about dental health in Pierce County as identified through special dental screening.

After the study began, a third objective was added:

3) to document the difference in the number of dental problems identified in the same child by the dental hygienist and the private physician, each screening the child independently of one another.

## DATA COLLECTION

The special dental screening service was offered to both Medicaid and non-Medicaid children in a non random sample of Health Department clinics and private homes over the six month period August 1978 - January 1979. The dental hygienist spent 16 hours per week providing dental health education and screening to children over two years of age in clinic and home settings throughout Pierce County.

Health department clinic sites were visited monthly by the dental hygienist to obtain data about the number and kinds of dental problems reported in the special dental screen. After obtaining consent for the special dental screening service the dental hygienist provided instruction in dental health care and treated each child with sodium fluoride. The mouth was examined and oral hygiene was evaluated on a scale of one to three (good - poor). After the examination, referrals, when appropriate, were made to dental health care professtionals. A special dental screening form was used to record information about the dental health of each child screened as well as age and Medicaid eligibility. Additionally, if the child also received a complete EPSDT screen, the dental hygienist noted her findings as normal or abnormal on the Project's existing EPSDT screening form.

Special dental screening services in the home were offered to children who recently received EPSDT screens by private Project physicians in an effort to document the differences in dental screens completed by a dental hygienist and private physicians. Families of children screened through the EPSDT Project were contacted to obtain their consent for dental screening. The dental hygienist visited the home, instructed the child in dental health care and performed a dental examination. The dental hygienist recorded her findings as normal or abnormal on the Project's EPSDT screening form as well as noted whether or not a dental referral had been made by the private physician at the EPSDT screen.

## CLIENT CHARACTERISTICS

From August 1978 to January 1979 525 special dental screens were completed in 15 Well Child and Adolescent clinics throughout Pierce County. Dental screens by clinic is shown in Table 1. The age distribution of children screened is also shown in Table 1. Over half, 50.5% of the children screened were preschoolers and early school age, 3 - 7 years. Less than one percent of all screens were completed on young adults, 18-21 years. This age distribution accurately reflects the population of WCC and Adolescent Health Department clinics.

Of those children receiving special dental screening in Health Department clinics 13.9% were Medicaid eligible. Medicaid eligibility by clinic is shown in Table 2. Four clinics screened reported a high proportion (more than 15% of total screened) of AFDC eligible: YWCA (60.0%), Lakewood Adolescent (31.0%), Mary Bridge (21.2%), and Southside (17.4%). The age distribution of AFDC children screened does not differ significantly from non AFDC children.

Arranging the home visit component of the dental study proved difficult -- only eight special dental screens were completed on children also screened by private providers. Major obstacles in completing dental screens in the home proved to be the difficulty in contacting families to arrange for screening appointments and the fact that most children were in school until after 3:00 o'clock. Because of the small number of screens completed, the study was terminated after 2 months. The sample included children, ages 4-7 years, who were screened by the two high volume Project providers.

## SCREEN RESULTS

Special dental screening services in the Health Department clinics setting has increased the percentage of EPSDT screens with referrable dental conditions from 12.2% in clinic screens without the screening service to 38.9% in the special dental screening group. This is a large and statistically significant increase and is reflected in all age groups. Clearly, the majority of dental problems are not identified at the EPSDT screen.

The dental hygienist made dental referrals in three areas: 1) for obvious or suspected decay, 2) for annual checkup and prophylaxis and 3) for orthodontia. 38.9% of all children screened were referred to the dentist for one or more of these problems. Table 3 shows the percentage of screens reporting dental referrals by AFDC eligibility and clinic. Six clinics identified dental problems in over 50% of all children screened: Eastside Adolescent, Southside, Lakewood Adolescent, YWCA, Parkland, and Spanaway Adolescent. Preschool and early school age children, 3-7 years old and teenagers had the highest referral rates.

Referrals for suggested or obvious decay were made in 22.1% of all children screened. Table 4 shows that the problem finding rate increases with age, with 20.4% of all 3-7 year olds requiring referrals to 50.0% of all teenagers having decay problems. Of all children screened, 15.6% reported more than one year since their last dental checkup. Preschool and early school age (3-7 years) children had the highest rate of referrals for annual checkups, (21.1%). Most of these children had never visited a dental health care professional.

Orthodontia referrals were made for 9 (1.7%) children. Two thirds of these children were Medicaid eligible for whom orthodontia services are not available.

Medicaid eligible children screened differed significantly from non Medicaid children in the proportion of dental problems reported. 53.4% of all Medicaid eligible children screened were referred for further diagnosis and treatment compared with 36.5% of the non Medicaid children (Table 3). Clinics with high proportions of AFDC eligibles referred to dental health professional are shown in Table 6; YWCA clinic reported 78.3% of all AFDC children screened were referred for further diagnosis and treatment.

The dental hygienist evaluated the dental hygiene of all children screened in health department clinics. A majority of those children screened (53.1%) had a Fair hygiene rating, indicating some plaque was observed but that the mouth was fairly clean overall. Of those with Poor hygiene, 41% were older children aged 12-17 years. Table 5 suggests that children maintain good-fair hygiene throughout their early school years but neglect personal dental care in the teen years.

The small sample size (N=8) of the special dental screening service in the home and the nonrepresentative sample necessarily limits the evaluation of dental problem finding rates for EPSDT provider screened children and the same children screened by the dental hygienist. In 63% (5) of the children screened both by the EPSDT provider and the dental hygienist, a referral for further diagnosis and treatment was made by the dental hygienist. The EPSDT providers reported no dental referrals for the same group of children. Data from this small sample confirms findings from the group receiving special dental screening in the clinic setting: the EPSDT physician is providing at best only a cursory dental screen.

## DISCUSSION

Data from this study demonstrate that the incidence of referrable dental conditions in Pierce County is significantly higher than EPSDT Demonstration Project data indicates. Findings indicate that private and public sector providers have not effectively incorporated the dental component into the EPSDT screen. Because 38.9% of all children screened require referral to a dental health care professional (up to 83% in certain populations) it is essential that a thorough dental screening program be adopted to identify those children requiring further diagnosis and treatment.

The data from Health Department dental clinic screenings identifies WCC and Adolescent clinic patients at risk for dental disease: preschoolers and teenagers, especially Medicaid eligibles, screened at these area Well Child and Adolescent Clinics: Eastside Adolescent, Southside, Lakewood Adolescent, YWCA, Parkland, and Spanaway Adolescent.

## FOOTNOTES

[1] R. Graves and D. McNeal, *The Oral Health of the Public*, Ann Arbor, University of Michigan, School of Public Health, 1972.

[2] Roy L. Lindahl, DDS, MS, and Wesley O. Young, DMD, MPH, "A Guide to Dental Care for the EPSDT Program under Medicaid," prepared by the American Academy of Pedodontics under contract SRS-73-49, Social and Rehabilitation Service, U.S. Department of Health, Education and Welfare, p.6.

[3] Arthur Britt, Health Services Research Institute, personal communication, June, 1979.

## TABLE 1 DISTRIBUTION OF DENTAL SCREENS
## BY AGE AND CLINIC

| | | Total | Spanaway | Span. Adol. | Eastside | East. Adol. | Eatonville | Southside | Mary Bridge | Lakewood | Lakew. Adol. | YWCA | Parkland | Northend | Artondale | Gig Harbor | Orting |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total | N | 525 | 20 | 13 | 67 | 58 | 37 | 23 | 33 | 52 | 42 | 35 | 45 | 28 | 28 | 37 | 5 |
| | % | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| 0 - 2 | No. | 41 | 1 | 0 | 4 | 2 | 3 | 1 | 4 | 4 | 0 | 9 | 3 | 2 | 7 | 0 | 0 |
| | % | 7.8 | 5.0 | 0.0 | 5.9 | 3.5 | 8.1 | 4.3 | 12.1 | 7.7 | 0.0 | 25.7 | 6.7 | 7.1 | 25.0 | 0.0 | 0.0 |
| 3 - 7 | No. | 265 | 16 | 0 | 28 | 9 | 27 | 18 | 24 | 39 | 2 | 17 | 36 | 19 | 18 | 8 | 3 |
| | % | 50.5 | 80.0 | 0.0 | 41.8 | 15.5 | 73.0 | 78.3 | 72.7 | 75.0 | 4.8 | 48.6 | 80.0 | 67.9 | 64.3 | 21.6 | 60.0 |
| 8 - 12 | No. | 127 | 3 | 10 | 35 | 12 | 7 | 4 | 5 | 9 | 7 | 8 | 6 | 7 | 3 | 9 | 2 |
| | % | 24.2 | 15.0 | 76.9 | 52.2 | 20.7 | 18.9 | 17.4 | 15.2 | 17.3 | 16.7 | 22.9 | 13.3 | 25.0 | 10.7 | 24.3 | 40.0 |
| 13 - 17 | No. | 88 | 0 | 2 | 0 | 34 | 0 | 0 | 0 | 0 | 33 | 0 | 0 | 0 | 0 | 19 | 0 |
| | % | 16.8 | 0.0 | 15.4 | 0.0 | 58.6 | 0.0 | 0.0 | 0.0 | 0.0 | 78.6 | 0.0 | 0.0 | 0.0 | 0.0 | 51.4 | 0.0 |
| 18 - 21 | No. | 4 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| | % | 0.8 | 0.0 | 7.7 | 0.0 | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.9 | 0.0 | 0.0 | 0.0 | 2.7 | 0.0 |

# TABLE 2 DISTRIBUTION OF DENTAL SCREENS
# BY AFDC ELIGIBILITY AND CLINIC

| | | Spanaway | Spar. Adol. | Eastside | East. Ado. | Eatonville | Southside | Mary Bridge | Lakewood | Lakew. Adol. | YMCA | Parkland | Northend | Artondale | Gig Harbor | Orting |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total | | [illegible] | [illegible] | 67 | 58 | 37 | 23 | 33 | 52 | 42 | 35 | 45 | 28 | 28 | 37 | 5 |
| | | | [illegible] | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| [illegible] AFDC | | | [illegible] | [illegible] | 54 | 36 | [illegible] | 26 | 46 | 29 | 12 | 40 | 28 | 28 | 37 | 5 |
| | | | 100.0 | 85.1 | 93.1 | 97.3 | [illegible] | 78.8 | 88.5 | 69.0 | 34.3 | 88.9 | 100.0 | 100.0 | 100.0 | 100.0 |
| AFDC | | 0 | 0 | 10 | 4 | 1 | 4 | 7 | 6 | 13 | 23 | [illegible] | 0 | 0 | 0 | 0 |
| | 13.9 | 0.0 | 0.0 | 14.9 | [illegible] | 2.7 | 17.4 | 21.2 | 11.5 | 31.0 | 65.7 | 11.1 | 0.0 | 0.0 | 0.0 | 0.0 |

## TABLE 3 PERCENTAGE OF DENTAL SCREENS REPORTING REFERRABLE CONDITONS* BY A.F.D.C. ELIGIBILITY AND CLINIC

| | | Total | Spanaway | Span. Adol. | Eastside | East. Adol. | Eatonville | Southside | Mary Bridge | Lakewood | Lakew. Adol. | YWCA | Parkland | Northend | Artondale | Gig Harbor | Orting |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | 204 | 2 | 8 | 20 | 29 | 9 | 13 | 12 | 22 | 21 | 18 | 25 | 9 | 7 | 7 | 2 |
| Total | % | 38.9% | 10.0 | 61.5 | 29.9 | 50.0 | 24.3 | 56.6 | 36.3 | 42.3 | 50.0 | 51.4 | 55.6 | 32.1 | 25.0 | 18.9 | 40.0 |
| AFDC | % | 53.4% | 0.0 | 0.0 | 0.0 | 25.0 | 0.0 | 50.0 | 57.1 | 33.0 | 76.9 | 78.3 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| No AFDC | % | 36.5% | 10.0 | 61.5 | 35.1 | 51.9 | 23.1 | 57.9 | 30.8 | 43.5 | 37.9 | 25.0 | 50.0 | 32.1 | 25.0 | 18.9 | 40.0 |

* includes referrals for obvious or suspected decay, annual checkup, and orthodontia.

## TABLE 4 PROPORTION OF DENTAL SCREENS REPORTING REFERRABLE CONDITIONS BY AGE

| AGE | REFERRABLE CONDITIONS | | | |
|---|---|---|---|---|
| | All Conditions | Decay | Annual | Orthodontia |
| Total | 38.9% | 22.1% | 15.6% | 1.7% |
| 0 - 2 years | 9.8 | 0.0 | 9.8 | 0.0 |
| 3 - 7 years | 41.9 | 20.4 | 21.1 | 0.8 |
| 8 - 12 years | 33.9 | 22.8 | 8.7 | 3.2 |
| 13 - 17 years | 48.9 | 35.2 | 11.4 | 3.4 |
| 18 - 21 years | 75.0 | 50.0 | 25.0 | 0.0 |

## TABLE 5 HYGIENE EVALUATION

| AGE | HYGIENE EVALUATION | | Good | | Fair | | Poor | |
|---|---|---|---|---|---|---|---|---|
| | N | % | No. | % | No. | % | No. | % |
| Total | 525 | 100% | 203 | 38.7% | 287 | 54.7% | 34 | 6.5% |
| 0 - 2 years | 41 | 100 | 12 | 29.3 | 29 | 70.7 | 0 | 0.0 |
| 3 - 7 years | 265 | 100 | 104 | 39.3 | 151 | 57.0 | 10 | 3.8 |
| 8 - 12 years | 127 | 100 | 44 | 34.7 | 74 | 58.3 | 9 | 7.1 |
| 13 - 17 years | 88 | 100 | 41 | 46.6 | 33 | 37.5 | 14 | 15.1 |
| 18 - 21 years | 4 | 100 | 2 | 50.0 | 1 | 25.0 | 1 | 25.0 |

# APPENDIX G

# FAMILY PLANNING SUBSTUDY PROPOSAL

# Family Planning Project

## Background and Importance

The major goals and objectives of the Washington State Family Planning Program for 1978 include expansion of services to teenagers, coordination with other State of Washington Department of Social and Health Services agencies, and maximization of third-party reimbursements.[1] These goals and objectives correspond closely with the recent Federal mandate to the EPSDT program to coordinate its goals, procedures and delivery of services with other HEW-funded programs, and to develop linkages which will improve program interface in three areas: expanded outreach, greater delivery of health services to individuals eligible for Medicaid, and enhanced follow-through. This similarity between the goals and objectives of the two programs suggests that, at the Federal and State levels, optimum conditons exist for developing and testing a model for effective coordination between the Family Planning Program and EPSDT in Washington State.

The model will be tested in Pierce County and will involve coordination between the EPSDT Demonstration Porject and the Family Planning Clinic operated through the Tacoma-Pierce County Health Department. Several features of this clinic make it an optimum setting in which to test the possibilities for interagency coordination between Family Planning and EPSDT. They include the following:

1) The Tacoma-Pierce County Health Department Family Planning Clinic offers several services in addition to the usual Family Planning services. These include counseling, a limited amount of treatment for conditions identified at the clinic, and a commitment to provide follow-up, where possible, for all clients.

2) The Tacoma-Pierce County Health Department Family Planning Clinic has the highest percentage of Medicaid payees in the State of Washington.[2] During the first 3 months of 1978, there were 299 Family Planning Clients 20 years old and younger, of whom 77 or 25.7% were Medicaid-eligible and another 11 were probably eligible.[3]

3) The vast majority of the women who utilize the clinic do not have a private physician, nor are they receiving regular health care. Only 18, or 23.4% of the 77 confirmed Medicaid-eligible Family Planning clients, obtained an EPSDT screen within the last 18 months.[4]

As a group, the young women who will participate in this project require a number of health and social services and are at risk for a wide variety of health and social-emotional problems. Limited data from the EPSDT Demonstration Project indicate that the proportion of EPSDT screens in which problems are identified (excluding immunization) rises from 59.1% for infants to 72.2% for those aged 14 and over. The mean number of problems per screen also rises from 0.94 for infants to 1.25 for adolescents aged 14-20.[5]

## Program Description

The purpose of the project is to develop and test on the local level a model for effecti coordination between Family Planning and EPSDT which is replicable in other jurisdictions in Washington State. The model has the following features: 1) the provision on-site at the Tacoma-Pierce County Health Department Family Planning Clinic of those EPSDT screening procedures not currently included as part of Family Planning services. These procedures include vision hearing and dental checks; an assessment of the eyes, ears, nose and throat; a developmental assessment; and an immunization assessment and update, 2) the provision of expanded follow-up services to clients requiring referrals for diagnosis and treatment, 3) the development of strategies for maximizing third party reimbursements (primarily Title XIX) for Family Planning/EPSDT services, 4) the development of efficient service delivery models and procedures which integrate the additional EPSDT services and expanded follow-up capabilities into the Family Planning context.

The case for coordination is persuasive. Coordination between Family Planning and EPSDT will have several important outcomes:

1) It will improve access to and reduce duplication of health services for individuals eligible for Medicaid by combining at one location the services delivered by two separate Federally-assisted health programs.
2) It will increase utilization of EPSDT services by the adolescent population which historically has had a low rate of participation in the program. Statistics from the EPSDT Demonstration Project indicate that, as of June 1, 1978, of the 2548 children screened as part of the Project, only 162 or 6.4% were between the ages of 14-20. Implementation of this project will result in approximately 300 additional adolescent screenings between December, 1978, and August, 1979, through the Family Planning Clinic alone--an increase of almost 200% in the number of adolescents screened and participating in the EPSDT Demonstration Project.
3) It will provide prototype information for the inclusion of EPSDT screening procedures at other Family Planning Clinics in Washington State.

This proposal has the following objectives:

1) To determine the cost increment of providing on-site at the Family Planning Clinic those EPSDT screening services which are not currently part of the regular Family Planning examination.
2) To explore the feasibility of Title XIX reimbursement for treatment by Family Planning clinics of minor problems identified through Family Planning-EPSDT procedures.
3) To determine the scope and content of agency agreements necessary for efficient coordination between Family Planning and EPSDT at the State level, and to implement written agreements which will result in effective collaboration between appropriate units of Department of Social and Health Services and local providers.

(These agreements should include provisions for preserving confidentiality by insuring that EPSDT services provided at Family Planning clinics do not appear on the end of the month billing statements (EOMB) mailed to Medicaid recipients; and provisions for the annual review of all agreements to determine their continuing appropriateness and applicability.)

4) To develop efficient service delivery models and procedures which integrate the additional EPSDT services and expanded follow-up capabilities into the Family Planning Clinic context.
5) To determine the costs of providing extended case monitoring to treatment completion for conditions identified as a result of the Family Planning/EPSDT screen.
6) To assess the effects of this extended case monitoring system on treatment outcomes by measuring the following proportions:
    a) the proportion of cases converted from unwell to well
    b) the proportion of problems that are successfully resolved, and
    c) the proportion of problems receiving initial treatment within sixty days after screening
7) To compare data about the target group who receive both Family Planning and EPSDT services at the Family Planning Clinic with data about a sample group who receive both Family Planning and EPSDT services, but at separate sites.

## Evaluation Description and Design

Data for this project will be analyzed both on-site in Pierce County and at the Health Services Research Institute (HSRI) in San Antonio. Objectives 1, 2, 3, 4 and 7 will be the responsibility of the EPSDT Demonstration Project staff in Pierce County, while Objectives 5 and 6 -- the analysis of routine cost and service data -- will be handled by HSRI.

For Objective 1, EPSDT Project staff will design a time sheet for keeping track of the amount of time required to provide the additional EPSDT screening procedures at the Family Planning clinic.

Objectives 2 and 3 will entail a series of negotiations between representatives of relevant units within State government which will be facilitated by EPSDT Demonstration Project staff. The elements which may be appropriate to most such agreements are outlined in an Health, Education and Welfare Action Transmittal entitled "Medicaid Interagency Relationships." [6]

Objective 4 will be implemented on the local level through a series of discussions and experiments carried out jointly by the Tacoma-Pierce County Health Department Family Planning Clinic and the EPSDT Demonstration Project, in consultation with representatives from the Family Planning Program and EPSDT at the State level.

For Objective 7, EPSDT Project staff will utilize two primary data sources. For Family Planning clients receiving EPSDT screens at the Family Planning Clinic, they will analyze data obtained from the screening and medical referral sheets. For the sample group who receive both EPSDT and Family Planning but at separate sites, Project staff will review the Medicaid patient profiles obtained from State data sources.

Progress toward meeting these objectives will be evaluated using thirteen performance indicators devised by EPSDT staff to measure project activity. (See Attachment A at end.)

Objectives 5 and 6 will be handled by the Health Services Research Institute which will analyze the routine cost and services data provided on regular Project data sheets. For purposes of this Project the Family Planning Clinic will be identified as a separate provider. Screens given to Family Planning clients will be flagged on Form 2 and analyzed in the same manner as those of other providers. Case monitoring costs will be calculated by adding a separate Family Planning entry on the Project time sheet; this will simply be another activity code similar to those already in use.

## Attachment A

## EPSDT/Family Planning Project Performance Indicators

1. By May 31, 1978, complete the initial discussions with Tacoma-Pierce County Health Department, Family Planning Clinic, and the Washington State Family Program designed to reach agreement on the parameters of the project.

2. By June 15, 1978, complete a draft of a formal agreement outlining the responsibilities of all participants in the project and the terms and conditions of their participation.

3. By July 15, 1978, obtain the assent of all participants in the project to the formal agreement.

4. By July 25, 1978, collect and analyze baseline data on adolescent Family Planning clients who visited the clinic during the first three months of 1978; and, using this data, prepare a proposal in support of a request for Medicaid reimbursement for EPSDT screening procedures provided on-site at the Tacoma-Pierce County Health Department Family Planning Clinic.

5. By September 1, 1978, obtain a response from Washington State to the request for Medicaid reimbursement for EPSDT screening procedures provided on-site at the Tacoma-Pierce County Health Department Family Planning Clinic.

6. By October 1, 1978, identify the training needs of both the Family Planning Clinic staff and the EPSDT Demonstration Project staff who will participate in the EPSDT/Family Planning project.

7. By November 1, 1978, conclude discussions with the Tacoma-Pierce County Health Department Family Planning Clinic about implementing regularly-scheduled clinics designed specifically for adolescents, at which EPSDT screening would be provided.

8. By November 30, 1978, complete training of all staff who will participate in the EPSDT/Family Planning project.

9. By December 1, 1978, begin provision of additional EPSDT screening procedure for all Medicaid-eligible adolescents who utilize the services of the Tacoma-Pierce County Health Department Family Planning Clinic.

10. By March 1, 1979, review progress toward project goals and objectives with the staff of the Family Planning Clinic, and modify project activity as necessary.

11. By August 31, 1979, close-out the provision of additional EPSDT screening procedures at the Tacoma-Pierce County Health Department Family Planning Clinic.

12. By October 1, 1979, conclude discussions with the staff of the Family Planning Clinic on the success of the project in meeting its stated goals and objectives.

13. By December 1, 1979, complete a report on the Family Planning Project which includes information on the following:
    a) the feasibility of providing at Family Planning clinics in Washington State those EPSDT screening procedures not currently included as part of the regular Family Planning examination,
    b) the costs of providing addtional EPSDT Screening services at the Tacoma-Pierce County Health Department Family Planning Clinic,
    c) the costs and effectiveness of providing follow-up for clients requiring diagnosis and treatment,
    d) descriptive data about Medicaid-eligible Family Planning clients under the age of 21.

# APPENDIX H

# DSHS MEMOS TO EPSDT SCREENERS

# APPENDIX H-1

## EPSDT MAXIMUM ALLOWANCE

DEPARTMENT OF SOCIAL AND HEALTH SERVICES
Olympia

MEMORANDUM NO. 77-96
Issued July 14, 1977

Contact: (206) 753-7313

TO: COMMUNITY CLINICS
LOCAL HEALTH DEPARTMENTS
REGIONAL ADMINISTRATORS
ESSO ADMINISTRATORS

FROM: OFFICE OF MEDICAL ASSISTANCE LK-11
Robert P. Hall, Medical Director
Richard Ned Nelson, Chief

SUBJECT: EPSDT MAXIMUM ALLOWANCE

Effective with EPSDT screening service beginning July 1, 1977, the maximum schedule of allowance is increased, as follows:

| | | |
|---|---|---|
| 09000 | Annual screening | $20.31 |
| 09001 | Interim screening | 13.54 |
| 09011 | Screening, under age one | 20.31 |

The Department does not have sufficient money for across-the-board fee adjustment but has used the Fiscal Year 1978 Legislative appropriation to correct the most serious inequities.

# APPENDIX H-2

## EARLY AND PERIODIC SCREENING,
## DIAGNOSIS AND TREATMENT
## (EPSDT)

# EARLY AND PERIODIC SCREENING, DIAGNOSIS AND TREATMENT (EPSDT)

The EPSDT program provides a preventive screening examination to recipients under the age of 21 who have a valid medical ID coupon. Any physician with a Medicaid agreement or local health department or community clinic with an EPSDT agreement may provide an EPSDT screening examination.

An unclothed examination is required including:

a. medical history
b. assessment of physical growth and mental development
c. inspection of ears, nose, mouth, teeth and throat
d. vision screening (eyechart or arm movement for infants)
e. auditory screening (tuning fork or equivalent)
f. screening for cardiac abnormalities
g. screening for anemia (hematocrit or hemoglobin)
h. screening for sickle cell trait (children at risk if not previously tested)
i. urine screening (simple dipstick or complete urinalysis)
j. blood pressure (children 12 years or older)
k. assessment and updating immunizations
l. tuberculosis screening, if indicated.

Follow-up definitive diagnosis and treatment may be provided under procedures and regulations of the existing medical program. EPSDT screening service is not counted in the usual limitation of one office call a month for treatment of a medical complaint. When a health deviation is discovered during screening, follow-up treatment, when required, may be given by a physician screener on the same day as the screening and billed on a separate Physician"s Invoice Form 525-100 using the appropriate procedure code from the Schedule of Maximum Allowances and checking EPSDT follow-up in Block 5. Continuing treatment visits, however, fall within the one-a-month treatment limitation.

EPSDT screening is not an acceptable procedure for the allowable prepunched card and listing billing some providers currently submit.

## ANNUAL SCREENING

Over age one - The screening fee (Code 09000) will be paid when screening an eligible person the first time and for one screening annually thereafter. (Annually is defined as 12 months since the last screen.)

Under age one - For children under age one a maximum of five screenings are allowed at the screening fee (Code 09011) when conducted according to the schedule as listed under code 09011.

## INTERIM SCREENING

Screening done in less than 12 months (for children age one and over) or oftener than the above periodicity schedule (for children under age one) will be paid on Code 09001 when justified by indicating the need in Box 18 of the Physician's Invoice.

## SINGLE PROCEDURES

Single procedure billings may be made at any time after an initial or subsequent screening, e.g. for blood tests, immunization up-date visits, urine tests or skin test which do not involve a total screening examination. Check "screening" in Box 5 on the Physician's Invoice and bill for the procedure only.

Completing billing form for EPSDT

Box 5: Check EPSDT SCREEN for Annual or Interim screening

Box 8: Use code from list below.

| | | |
|---|---|---|
| 09000 | Annual Screening | $20.31 |
| 09001 | Interim screening | 13.54 |
| 09011 | Screening during the first year of life only, when conducted on the following schedule<br>-one screening up to six weeks of age<br>-one during two to three months of age<br>-one during four to five months of age<br>-one during six to seven months of age<br>-one during eleven to twelve months of age | 20.31 |
| 07999 | Miscellaneous x-ray - designate actual x-ray performed, with justification | usual/customary |
| 08018 | Miscellaneous lab - designate actual lab work performed, other than those listed below | usual/customary |
| 08681 | Hematocrit | 2.71 |
| 08622 | Hemoglobin | 2.71 |
| 08936 | Complete urine (no additional payment made for simple dipstick) | 3.39 |
| 09320 | Skin test with bacterial, viral, or fungal extracts (e.g. brucella, tuberculin, etc.) Justification is required. | 6.77 |
| 09999 | Total immunization update (per visit) | 3.00 |

Box 9: Enter one of the following

| | |
|---|---|
| X0 | Tests Negative |
| X1 | Refused treatment or referral |
| X2 | No one in area to refer to |
| X3 | Not taking new patients |
| X9 | Other (Specify in Box 18) |
| Y | Referred for treatment |

Box 11: Indicate the problems found - use up to four codes.
Sample- BCI (Child had Hearing, Vision and Allergy problems)

A - Dental
B - Hearing
C - Vision
D - Lead Poisoning
E - Anemia
F - Upper Respiratory
G - Diabetes
H - Infected Tonsils
I - Allergies
Z - Other (Specify in Box 18)

Box 18: Code "Y005" Well Patient Exam

Box 19: Check "From" and give agency/physician referring patient
Check "to" and give agency/physician patient referred to

FILL IN THE BALANCE OF PHYSICIAN INVOICE AS REQUIRED ON REGULAR MEDICAID

Your participation in this important program will greatly assist in assuring the health and development of under-privileged children in the State of Washington.

DEPT. OF SOCIAL & HEALTH SERVICES

1. CLAIMANT NAME & ADDRESS

CLAIMANT NUMBER 1730804

Tom Jones, M.D.
202 Joy Street
Anytown, Wash 90000

2. PATIENT NAME

|  |  |  |  |
|---|---|---|---|
| LAST | FIRST | INITIAL | 3. SEX |
| Lewis | Tammy | - | F |

4. ENTER PATIENT IDENTIFICATION FROM NIS IDENTIFICATION COUPON

| INITIALS | BIRTH DATE | LAST NAME | SO |
|---|---|---|---|
| T- | 091373 | Lewis | A |

ATTACH IDENTIFICATION COUPON WITHIN DOTTED LINES

5 USE THIS SPACE ONLY IF SERVICE PERFORMED IS PART OF EARLY PERIODIC SCREENING DIAGNOSIS & TREATMENT PROGRAM.

☒ EPSDT SCREEN ☐ EPSDT FOLLOW UP

ENTER APPROPRIATE CODE IN COLUMN 7 BELOW:

1 IN PATIENT HOSPITAL
2 OUTPATIENT HOSPITAL
3 OFFICE
4. RESIDENCE
5. EMERGENCY ROOM
6 CONGREGATE CARE
7. INTERMEDIATE CARE FACILITY
8 SKILLED NURSING HOME
9. OTHER

REPORT OF SERVICES RENDERED

| 6 DATE RENDERED MO. | DAY | YR. | 7 PLACE OF SERVICE | 8 CPT-3 CODE | 9 MOD | SERVICE RENDERED 10. DESCRIPTION OF SERVICES | 11 DIAGNOSIS CODE | 12. CHARGE | DEPARTMENT USE |
|---|---|---|---|---|---|---|---|---|---|
| 11 | 19 | 76 | 3 | 09000 | Y | annual screening | EF | 20.31 |  |
| 11 | 19 | 76 | 3 | 08681 |  | Hematocrit |  | 2.71 |  |
| 11 | 19 | 76 | 3 | 08936 |  | Urinalysis |  | 3.39 |  |
| 11 | 19 | 76 | 3 | 09999 |  | Immunization Update |  | 3.00 |  |

13 CLAIMANT'S CERTIFICATE

I hereby certify under penalty of perjury, that the material furnished and service rendered is a correct charge against the State of Washington; the claim is just and due; that no part of same has been paid and I am authorized to sign for the payee; and that all goods furnished and/or services rendered have been provided without discrimination on the grounds of race, creed, color, or national origin.

Subscribed this 23 day of November, 19 76

CLAIMANT SIGN HERE (In Ink) X Authorized Signature

14. TOTAL CHARGES 29.41

15. PAYABLE BY PATIENT (AS PER LETTER OF AWARD)

16. COVERED BY INSURANCE

17. BALANCE DUE 29.41

APPROVED AND ALLOWED IN THE ABOVE AMOUNT OR AS CORRECTED.

X
DEPARTMENT USE

REQUEST FOR PHYSICIAN SERVICES

18. DIAGNOSIS AND JUSTIFICATION

| DIAG. CODE |  |
|---|---|
| Y005 | Well Patient Exam |

19. IF PATIENT WAS REFERRED INDICATE → FROM X TO DOCTOR NAME Self NUMBER

20 NAME OF PERFORMING PHYSICIAN NUMBER

MEDICAL CONSULTANT ACTION TAKEN

1. COMMENTS

2. THIS REQUEST IS: APPROVED DENIED

1. DATE MO. DAY YR.

2. SIGNATURE OF MEDICAL CONSULTANT

538-100
DSHS 6 30 REV. (7/74)

## PHYSICIAN INVOICE

INVOICE MUST BE SUBMITTED WITHIN 60 DAYS FROM END OF MONTH FOLLOWING DATE OF SERVICE. STATE COPY

Mail to: Dept. of Social Health Services, Professional Audit, P.O. Box 9248, Olympia, Washington 98504

DEPT. OF SOCIAL & HEALTH SERVICES

**1. CLAIMANT NAME & ADDRESS**

**CLAIMANT NUMBER** 1730804

Tom Jones, M.D.
202 Joy Street
Anytown, Wash 90000

**2. PATIENT NAME**

| LAST | FIRST | INITIAL | 3. SEX |
|---|---|---|---|
| Smith | James | L | M |

**4. ENTER PATIENT IDENTIFICATION FROM HIS IDENTIFICATION COUPON**

| INITIALS | BIRTH DATE | LAST NAME | SO |
|---|---|---|---|
| JL | 101576 | Smith | B |

← ATTACH IDENTIFICATION COUPON WITHIN DOTTED LINES →

5 USE THIS SPACE ONLY IF SERVICE PERFORMED IS PART OF EARLY PERIODIC SCREENING DIAGNOSIS & TREATMENT PROGRAM.

☒ EPSDT SCREEN ☐ EPSDT FOLLOW UP

ENTER APPROPRIATE CODE IN COLUMN 7 BELOW:

1 IN PATIENT HOSPITAL
2 OUTPATIENT HOSPITAL
3 OFFICE
4. RESIDENCE
5. EMERGENCY ROOM
6. CONGREGATE CARE
7. INTERMEDIATE CARE FACILITY
8. SKILLED NURSING HOME
9. OTHER

| 6. DATE RENDERED MO. | DAY | YR. | 7 PLACE OF SERVICE | 8. CPT-3 CODE | 9 MOD | SERVICE RENDERED 10. DESCRIPTION OF SERVICES | 11 DIAGNOSIS CODE | 12. CHARGE | DEPARTMENT USE |
|---|---|---|---|---|---|---|---|---|---|
| 11 | 19 | 76 | 3 | 09011 | X9 | annual screening | Z | 20.31 | |
| 11 | 19 | 76 | 3 | 08681 | | Hematocrit | | 2.71 | |
| 11 | 19 | 76 | 3 | 08936 | | Urinalysis | | 3.39 | |
| 11 | 19 | 76 | 3 | 09999 | | Immunization Update | | 3.00 | |
| 11 | 19 | 76 | 3 | 09320 | | Skin test - Socio-economic deprived environment | | 6.77 | |

13. CLAIMANT'S CERTIFICATE

I hereby certify under penalty of perjury, that the material furnished and service rendered is a correct charge against the State of Washington; the claim is just and due; that no part of same has been paid and I am authorized to sign for the payee; and that all goods furnished and/or services rendered have been provided without discrimination on the grounds of race, creed, color, or national origin.

Subscribed this 23 day of November, 19 76

CLAIMANT SIGN HERE (In Ink) X Authorized Signature

| | |
|---|---|
| 14. TOTAL CHARGES | 37.18 |
| 15. PAYABLE BY PATIENT (AS PER LETTER OF AWARD) | |
| 16. COVERED BY INSURANCE | |
| 17. BALANCE DUE | 37.18 |

APPROVED AND ALLOWED IN THE ABOVE AMOUNT OR AS CORRECTED.

X

DEPARTMENT USE

**REQUEST FOR PHYSICIAN SERVICES**

18. DIAGNOSIS AND JUSTIFICATION

DIAG. CODE

Y005 Well Patient Exam

Scoliosis under treatment in this office

19. IF PATIENT WAS REFERRED INDICATE → FROM X TO DOCTOR NAME Self NUMBER

20. NAME OF PERFORMING PHYSICIAN NUMBER

**MEDICAL CONSULTANT ACTION TAKEN**

1. COMMENTS

2. THIS REQUEST IS: APPROVED DENIED

1. DATE MO. DAY YR. 2. SIGNATURE OF MEDICAL CONSULTANT

335-100
DSHS 6-30 REV. (2/76)

PHYSICIAN INVOICE

INVOICE MUST BE SUBMITTED WITHIN 60 DAYS FROM END OF MONTH FOLLOWING DATE OF SERVICE. STATE COPY
Mail to Dept. of Social Health Services Professional Audit, P.O. Box 9248, Olympia Washington 98504

DEPT. OF SOCIAL & HEALTH SERVICES

1. CLAIMANT NAME & ADDRESS

CLAIMANT NUMBER 1730804

Tom Jones, M.D.
202 Joy Street
Anytown, Wash. 90000

2. PATIENT NAME

| LAST | FIRST | INITIAL | 3 SEX |
|---|---|---|---|
| Lewis | Tammy | - | F |

4. ENTER PATIENT IDENTIFICATION FROM HIS IDENTIFICATION COUPON

| INITIALS | BIRTH DATE | LAST NAME | SO |
|---|---|---|---|
| T- | 091373 | LEWIS | A |

← ATTACH IDENTIFICATION COUPON WITHIN DOTTED LINES →

5. USE THIS SPACE ONLY IF SERVICE PERFORMED IS PART OF EARLY PERIODIC SCREENING DIAGNOSIS & TREATMENT PROGRAM.

☒ EPSDT SCREEN ☐ EPSDT FOLLOW UP

ENTER APPROPRIATE CODE IN COLUMN 7. BELOW:

1. IN PATIENT HOSPITAL
2. OUTPATIENT HOSPITAL
3. OFFICE
4. RESIDENCE
5. EMERGENCY ROOM
6. CONGREGATE CARE
7. INTERMEDIATE CARE FACILITY
8. SKILLED NURSING HOME
9. OTHER

REPORT OF SERVICES RENDERED

| 6. DATE RENDERED MO. | DAY | YR. | 7 PLACE OF SERVICE | 8 CPT-3 CODE | 9 MOD | SERVICE RENDERED 10. DESCRIPTION OF SERVICES | 11 DIAGNOSIS CODE | 12. CHARGE | DEPARTMENT USE |
|---|---|---|---|---|---|---|---|---|---|
| 01 | 24 | 77 | 3 | 09001 | X9 | Interim screening | E | 13.54 | |
| 01 | 24 | 77 | 3 | 08681 | | Hematocrit | | 2.71 | |

13 CLAIMANT'S CERTIFICATE

I hereby certify under penalty of perjury, that the material furnished and service rendered is a correct charge against the State of Washington; the claim is just and due; that no part of same has been paid and I am authorized to sign for the payee; and that all goods furnished and/or services rendered have been provided without discrimination on the grounds of race, creed, color, or national origin.

Subscribed this 26 day of January, 19 77

CLAIMANT SIGN HERE (In Ink) X Authorized Signature

14. TOTAL CHARGES 16.25

15. PAYABLE BY PATIENT (AS PER LETTER OF AWARD)

16. COVERED BY INSURANCE

17. BALANCE DUE 16.25

APPROVED AND ALLOWED IN THE ABOVE AMOUNT OR AS CORRECTED.

X

DEPARTMENT USE

REQUEST FOR PHYSICIAN SERVICES

18. DIAGNOSIS AND JUSTIFICATION

DIAG. CODE

Y005 Well Patient Exam

Interim screen justification. Low hematocrit found on initial screen

19 IF PATIENT WAS REFERRED INDICATE → FROM X TO DOCTOR NAME Self NUMBER

20 NAME OF PERFORMING PHYSICIAN NUMBER

FOR MEDICAL CONSULTANT ACTION TAKEN

1. COMMENTS

2. THIS REQUEST IS:

APPROVED DENIED

1. DATE MO. DAY YR.

2. SIGNATURE OF MEDICAL CONSULTANT

[illegible] 100
DSHS 6-30 REV (2/76)

PHYSICIAN INVOICE

INVOICE MUST BE SUBMITTED WITHIN 60 DAYS FROM END OF MONTH FOLLOWING DATE OF SERVICE.

STATE COPY

Mail to: Dept. of Social Health Services, Professional Audit, P.O. Box 9248, Olympia, Washington 98504

DEPT. OF SOCIAL & HEALTH SERVICES

| | | |
|---|---|---|
| 1. CLAIMANT NAME & ADDRESS<br>Tom Jones, M.D.<br>202 Joy Street<br>Anytown, Wash 90000 | CLAIMANT NUMBER<br>1730804 | 2. PATIENT NAME — LAST: Oglesby — FIRST: Shannon — INITIAL: L — 3. SEX: F |

4. ENTER PATIENT IDENTIFICATION FROM HIS IDENTIFICATION COUPON

| INITIALS | BIRTH DATE | LAST NAME | SO |
|---|---|---|---|
| SL | 102271 | Agles | A |

ATTACH IDENTIFICATION COUPON WITHIN DOTTED LINES

5. USE THIS SPACE ONLY IF SERVICE PERFORMED IS PART OF EARLY PERIODIC SCREENING DIAGNOSIS & TREATMENT PROGRAM.

☒ EPSDT SCREEN ☐ EPSDT FOLLOW UP

ENTER APPROPRIATE CODE IN COLUMN 7 BELOW:

1 IN PATIENT HOSPITAL
2 OUTPATIENT HOSPITAL
3 OFFICE
4 RESIDENCE
5 EMERGENCY ROOM
6 CONGREGATE CARE
7. INTERMEDIATE CARE FACILITY
8. SKILLED NURSING HOME
9 OTHER

REPORT OF SERVICES RENDERED

| 6 DATE RENDERED MO. | DAY | YR. | 7 PLACE OF SERVICE | 8 CPT-3 CODE | 9 MOD | SERVICE RENDERED 10. DESCRIPTION OF SERVICES | 11 DIAGNOSIS CODE | 12. CHARGE | DEPARTMENT USE |
|---|---|---|---|---|---|---|---|---|---|
| 04 | 12 | 76 | 3 | 09000 | XO | annual screening | | 20.31 | |
| 04 | 12 | 76 | 3 | 08681 | | Hematocrit | | 2.71 | |
| 04 | 12 | 76 | 3 | 08936 | | Urinalysis | | 3.39 | |
| 04 | 12 | 76 | 3 | 09999 | | Immunization Update | | 3.00 | |
| 04 | 12 | 76 | 3 | 09320 | | Skin test - History of TB in family | | 6.77 | |

13 CLAIMANT'S CERTIFICATE

I hereby certify under penalty of perjury, that the material furnished and service rendered is a correct charge against the State of Washington; the claim is just and due; that no part of same has been paid and I am authorized to sign for the payee; and that all goods furnished and/or services rendered have been provided without discrimination on the grounds of race, creed, color, or national origin.

Subscribed this 20 day of April, 19 76

CLAIMANT SIGN HERE (In Ink) X Authorized Signature

14. TOTAL CHARGES 37.18
15. PAYABLE BY PATIENT (AS PER LETTER OF AWARD)
16 COVERED BY INSURANCE
17. BALANCE DUE 37.18

APPROVED AND ALLOWED IN THE ABOVE AMOUNT OR AS CORRECTED.
X
DEPARTMENT USE

REQUEST FOR PHYSICIAN SERVICES

18 DIAGNOSIS AND JUSTIFICATION

| DIAG CODE | |
|---|---|
| Y005 | Well Patient Exam |

19 IF PATIENT WAS REFERRED INDICATE → X FROM / TO — DOCTOR NAME: DSHS — NUMBER

20. NAME OF PERFORMING PHYSICIAN — NUMBER

MEDICAL CONSULTANT ACTION TAKEN

1. COMMENTS

2. THIS REQUEST IS: APPROVED DENIED

1. DATE MO. DAY YR.

2. SIGNATURE OF MEDICAL CONSULTANT

575-100
DSHS 6-38 REV. (2/76)

PHYSICIAN INVOICE

INVOICE MUST BE SUBMITTED WITHIN 60 DAYS FROM END OF MONTH FOLLOWING DATE OF SERVICE. STATE COPY

Mail to: Dept. of Social Health Services, Professional Audit, P.O. Box 9218, Olympia, Washington 98504

# APPENDIX H-3

## MEMORANDUM OF JANUARY 15, 1979

DEPARTMENT OF SOCIAL AND HEALTH SERVICES
Olympia

TO: PHYSICIANS
EPSDT PROVIDERS
REGIONAL DIRECTORS
CSO ADMINISTRATORS
CSO MEDICAL CONSULTANTS

MEMORANDUM NO.: 79-5
Issued: January 15, 1979

CONTACT: 753-7313
Scan: 8-234-7313

FROM: OFFICE OF MEDICAL ASSISTANCE LK-11
ROBERT P. HALL, M.D., CHIEF

SUBJECT: EARLY AND PERIODIC SCREENING, DIAGNOSIS AND TREATMENT (EPSDT)

This memorandum is to remind physicians and clinics about the EPSDT program and encourage screening of eligible children. The program provides up to five screenings for children under age one and an annual screening thereafter. This program has been responsible for discovering and correcting many health problems in children.

Recipients under the age of 21 who have a valid medical ID coupon are eligible to receive an unclothed examination which includes the following procedures:

a. medical history
b. assessment of physical growth and mental development
c. inspection of ears, nose, teeth and throat
d. vision screening (eyechart or arm movement for infants)
e. auditory screening (tuning fork or equivalent)
f. screening for cardiac abnormalities
g. screening for anemia (hematocrit or hemoglobin)
h. screening for sickle cell trait (children at risk if not previously tested)
i. urine screening (simple dipstick or complete urinalysis)
j. blood pressure (children 12 years or older)
k. assessment and updating immunizations
l. tuberculosis screening, if indicated.

As part of the EPSDT screening, children age four and older who have not been examined by a dentist within the past year should be referred to a dentist. Such referrals should be noted on the Physicians Invoice in Box 11 as code A, dental referral. Prior approval by the dental consultant is not required for the initial examination.

When a health deviation is discovered during screening, follow-up treatment, when required, may be given by a physician screener on the same day as the screening and billed on a separate Physicians Invoice Form 525-100 using the appropriate procedure code from the Schedule of Maximum Allowances and checking EPSDT follow-up in Block 5.

Community clinic and local health department screeners should refer the client to a participating medical or dental provider. The freedom of the client of choice of providers must be observed. Client contact should continue until treatment is initiated.

For more information on this beneficial program for eligible children, please contact this office, DSHS Mail Stop LK-11, Olympia, Washington 98504.

R 1/24/79

# APPENDIX H-4

## MEMORANDUM OF SEPTEMBER 20, 1979

RECEIVED
OCT 11 1979
TACOMA-PIE[illegible] DEPT.
NURS[illegible]

DEPARTMENT OF SOCIAL AND HEALTH SERVICES
Olympia

TO: PHYSICIANS
EPSDT PROVIDERS
REGIONAL DIRECTORS
CSO ADMINISTRATORS
CSO MEDICAL CONSULTANTS

MEMORANDUM NO. 79-106
Issued: September 20, 1979

CONTACT: (206) 753-7313
SCAN 8-234-7313

FROM: DIVISION OF MEDICAL ASSISTANCE LK-11
BRUCE FERGUSON, DIRECTOR

SUBJECT: EARLY AND PERIODIC SCREENING, DIAGNOSIS AND TREATMENT (EPSDT)

This memorandum is to remind physicians and clinics about the EPSDT program and encourage health screening of eligible children. The program provides up to five health screenings for children under age one and an annual screening thereafter. Any physician with a Medicaid agreement or a local health department or community clinic with an EPSDT agreement may provide an EPSDT screening examination. Recipients under the age of 21 who have a valid medical ID coupon are eligible to receive an unclothed examination which includes the following procedures:

a. medical history
b. assessment of physical growth, nutritional status and mental development
c. inspection of ears, nose, mouth, teeth and throat
d. vision screening (eyechart or arm movement for infants)
e. auditory screening (tuning fork or equivalent)
f. screening for cardiac abnormalities
g. screening for anemia (hematocrit or hemoglobin)
h. screening for sickle cell trait (children at risk if not previously tested)
i. urine screening (rapid urine for sugar albumin and bacteria)
j. blood pressure (children 12 years or older)
k. assessment and updating of immunizations
l. tuberculosis screening, if indicated
m. referral to a dentist for diagnosis and treatment for children three years of age and over.

As part of the EPSDT screening, children age three and older who have not been examined by a dentist within the past year must be referred to a dentist by the screening provider. Prior approval by the DSHS dental consultant is not required for the initial examination.

When a health deviation is discovered during screening, follow-up treatment, when required, may be given by a physician screener on the same day as the screening and billed on a separate Physicians Invoice Form 525-100 using the appropriate procedure code from the Schedule of Maximum Allowances and checking EPSDT follow-up in Box 5. Continuing treatment visits, however, fall within the one-a-month treatment limitation.

Community clinic and local health department screeners should refer the client to a participating medical or dental provider for treatment. The freedom of the client of choice of providers must be observed. Client contact should continue until medical and dental treatment is initiated.

For more information on this beneficial program for eligible children, please contact this office, DSHS Mail Stop LK-11 Olympia, Washington 98504. .

Screening codes and billing instructions are attached

## BILLING INSTRUCTIONS - EARLY AND PERIODIC SCREENING, DIAGNOSIS AND TREATMENT (EPSDT)

Annual Screening - Once a year for all children

Over Age One - The screening fee (Code 09000) will be paid when screening an eligible person the first time and for one screening annually thereafter. (Annual is defined as 365 days since the last screen.)

Under Age One - For children under age one a maximum of five screenings are allowed at the screening fee (Code 09011). The recommended schedule is: one screening up to six weeks of age, one during two to three months of age, one during four to five months of age, one during six to seven months of age, and one during eleven to twelve months of age.

### Interim Screening

Screening done in less than 12 months (for children age one and over) or oftener than the maximum of five screenings (for children under age one) will be paid on Code 09001 when justified by indicating the need in Box 18 of the Physicians Invoice.

### Single Procedures

Single procedure billings may be made at any time after an annual or interim screening, e.g. for blood tests, immunization up-date visits, urine tests or skin tests which do not involve a total screening examination. Check "screening" in Box 5 on the Physicians Invoice and bill for the procedure only.

### Completing Billing Form for EPSDT

Box 5: Check EPSDT SCREEN for annual or interim screening
Box 9: Use code from list below

| | | |
|---|---|---|
| 09000 | Annual Screening | $21.42 |
| 09001 | Interim Screening | 14.28 |
| 09011 | Screening during the first year of life only (maximum of five screenings) | 21.42 |
| 07999 | Miscellaneous x-ray - designate actual x-ray performed, with justification | usual/customary |
| 08018 | Miscellaneous lab – designate actual lab work performed | usual/customary |
| 08018 | Drawing Fee (one per visit) | 3.57 |
| 08681 | Hematocrit | 2.86 |
| 08622 | Hemoglobin | 2.86 |
| 08936 | Complete urine | 3.57 |
| 09320 | Skin test with bacterial, viral or fungal extracts (e.g. brucella, tuberculin, etc.). Justification is required. | 5.71 |
| 09999 | Total immunization update (per visit) | 3.17 |

Box 10: Enter one of the following numerical codes, as defined, to indicate the result of the EPSDT screening.

X0 Test Negative

X1 Refused treatment or referral
X2 No one in area to refer to
X3 Not taking new patients
X9 Other (Specify in Box 18)
Y Referred for treatment

} Also code Box 12 for these five codes

Box 12: Indicate the problems found - use up to four codes.
Sample - BCI (Child had hearing, vision and allergy problems)

A - Dental
B - Hearing
C - Vision
D - Lead Poisoning
E - Anemia
F - Upper Respiratory
G - Diabetes
H - Infected Tonsils
I - Allergies
Z - Other (Specify in Box 18)

Box 19: Code "V960" Well Patient Exam

Box 22: Check "From" and give agency/physician referring patient
Check "To" and give agency/physician patient referred to

FILL IN THE BALANCE OF PHYSICIAN INVOICE AS REQUIRED ON REGULAR MEDICAID

Sample billings are attached

Sample 1. Test Negative, Code XO in Box 10
Sample 2. Interim Screening, Code X9 in Box 10 and problem codes in Box 12
Sample 3. Referred for treatment, Code Y in Box 10 and problem codes in Box 12
Sample 4. Treatment follow-up

MEDICAL RECORD NUMBER

STATE OF WASHINGTON
DEPT. OF SOCIAL & HEALTH SERVICES

1. PROVIDER NAME & ADDRESS

PROVIDER NUMBER 1730804

TOM JONES, M.D.
202 JOY STREET
ANYTOWN, WASHINGTON 90000

2. PATIENT NAME

| LAST | FIRST | INITIAL | 3. |
|---|---|---|---|
| SMITH | JANES | L. | M |

4. ENTER PATIENT IDENTIFICATION FROM HIS IDENTIFICATION COUPON

| INITIALS | BIRTH DATE | LAST NAME | SO |
|---|---|---|---|
| JL | 101576 | SMITH | B |

← ATTACH IDENTIFICATION COUPON WITHIN DOTTED LINES →

SAMPLE 1
TEST NEGATIVE
NO PROBLEM CODE

PLEASE CHECK APPROPRIATE NAME ON COUPON

5. USE THIS SPACE ONLY IF SERVICE PERFORMED IS PART OF EARLY PERIODIC SCREENING DIAGNOSIS & TREATMENT PROGRAM.

☒ EPSDT SCREEN ☐ EPSDT FOLLOW UP

ENTER APPROPRIATE CODE IN COLUMN 7. BELOW:

1. IN-PATIENT HOSPITAL
2. OUTPATIENT HOSPITAL
3. OFFICE
4. RESIDENCE
5. EMERGENCY ROOM
6. CONGREGATE CARE
7. INTERMEDIATE CARE FACILITY
8. SKILLED NURSING HOME
9. OTHER

ENTER APPROPRIATE TYPE OF SERVICE IN COLUMN 8 BELOW:

1 = ANESTHESIA
2 = ASSISTANT SURGERY
3 = SURGEON—OTHER MEDICAL

## REPORT OF SERVICES RENDERED

| 6. DATE RENDERED |  |  | 7. PLACE OF SERVICE | 8. TYPE OF SERVICE | SERVICE RENDERED |  |  | 12. DIAGNOSIS CODE | 13. CHARGE | DEPARTMENT USE |
|---|---|---|---|---|---|---|---|---|---|---|
| MO. | DAY | YR. |  |  | 9. CPT-3 CODE | 10. MOD | 11. DESCRIPTION OF SERVICES |  |  |  |
| 10 | 01 | 79 | 3 | 3 | 09000 | X0 | ANNUAL SCREENING |  | 21.42 |  |
| 10 | 01 | 79 | 3 | 3 | 08681 |  | HEMATOCRIT |  | 2.86 |  |
| 10 | 01 | 79 | 3 | 3 | 08936 |  | URINALYSIS |  | 3.57 |  |
| 10 | 01 | 79 | 3 | 3 | 08018 |  | DRAWING FEE |  | 3.57 |  |
| 10 | 01 | 79 | 3 | 3 | 09999 |  | IMMUNIZATION UPDATE |  | 3.17 |  |
| 10 | 01 | 79 | 3 | 3 | 09320 |  | SKIN TEST - HISTORY OF TB IN FAMILY |  | 5.71 |  |
|  |  |  |  |  |  |  |  |  |  |  |

14. CLAIMANT'S CERTIFICATE

I hereby certify under penalty of perjury, that the material furnished and service rendered is a correct charge against the State of Washington; the claim is just and due; that no part of same has been paid and I am authorized to sign for the payee; and that all goods furnished and/or services rendered have been provided without discrimination on the grounds of handicap, race, creed, color, or national origin.

Subscribed this 20TH day of OCTOBER, 19 79

PROVIDER
SIGN HERE (In Ink) X

|  |  |
|---|---|
| 15. TOTAL CHARGES | 40.30 |
| 16. PAYABLE BY PATIENT (AS PER LETTER OF AWARD) |  |
| 17. COVERED BY INSURANCE |  |
| 18. BALANCE DUE |  |

APPROVED AND ALLOWED IN THE ABOVE AMOUNT OR AS CORRECTED
X
DEPARTMENT USE

| 19. DIAGNOSIS CODE | 20. WRITTEN DIAGNOSIS |
|---|---|
| V 960 | WELL PATIENT EXAM |

21. REQUEST FOR PHYSICIAN SERVICES AND JUSTIFICATION

22. IF PATIENT WAS REFERRED INDICATE → ☒ FROM ☐ TO DOCTOR NAME DSHS NUMBER

23. NAME OF PERFORMING PHYSICIAN NUMBER

DEPARTMENT MEDICAL CONSULTANT ACTION TAKEN

1. COMMENTS

2. THIS REQUEST IS: ☐ APPROVED ☐ DENIED

1. DATE MO. DAY YR.

2. SIGNATURE OF DEPARTMENT MEDICAL CONSULTANT

525-100 (11-78)
DSHS 6-30

# PHYSICIAN INVOICE

INVOICE MUST BE SUBMITTED WITHIN 60 DAYS FROM END OF MONTH FOLLOWING DATE OF SERVICE.

Mail to: Dept. of Social Health Services, Professional Audit and Systems Section, P.O. Box 9240, M.S. LO11, Olympia, Washington 98504

STATE COPY

ICN NUMBER

STATE OF WASHINGTON
DEPT. OF SOCIAL & HEALTH SERVICES

PROVIDER NAME & ADDRESS

TOM JONES, M.D.
202 JOY STREET
ANYTOWN, WASHINGTON 90000

PROVIDER NUMBER 1730804

| 2. PATIENT NAME LAST | FIRST | INITIAL | 3. SEX |
|---|---|---|---|
| SMITH | JAMES | L. | M |

4. ENTER PATIENT IDENTIFICATION FROM HIS IDENTIFICATION COUPON

| INITIALS | BIRTH DATE | LAST NAME | SO |
|---|---|---|---|
| JL | 101576 | SMITH | B |

← ATTACH IDENTIFICATION COUPON WITHIN DOTTED LINES →

SAMPLE 2
INTERIM SCREENING
PROBLEM CODE X9

PLEASE CHECK APPROPRIATE NAME ON COUPON

5. USE THIS SPACE ONLY IF SERVICE PERFORMED IS PART OF EARLY PERIODIC SCREENING DIAGNOSIS & TREATMENT PROGRAM.

☒ EPSDT SCREEN ☐ EPSDT FOLLOW UP

ENTER APPROPRIATE CODE IN COLUMN 7. BELOW:

1. IN-PATIENT HOSPITAL
2. OUTPATIENT HOSPITAL
3. OFFICE
4. RESIDENCE
5. EMERGENCY ROOM
6. CONGREGATE CARE
7. INTERMEDIATE CARE FACILITY
8. SKILLED NURSING HOME
9. OTHER

ENTER APPROPRIATE TYPE OF SERVICE IN COLUMN 8 BELOW:

1 = ANESTHESIA
2 = ASSISTANT SURGERY
3 = SURGEON—OTHER MEDICAL

REPORT OF SERVICES RENDERED

| 6. DATE RENDERED MO. | DAY | YR. | 7. PLACE OF SERVICE | 8. TYPE OF SERVICE | 9. CPT-3 CODE | 10. MOD | 11. DESCRIPTION OF SERVICES | 12. DIAGNOSIS CODE | 13. CHARGE | DEPARTMENT USE |
|---|---|---|---|---|---|---|---|---|---|---|
| 11 | 05 | 79 | 3 | 3 | 09001 | X9 | INTERIM SCREENING | EH | 14.28 | |
| 11 | 05 | 79 | 3 | 3 | 08681 | | HEMATOCRIT | | 2.86 | |
| 11 | 05 | 79 | 3 | 3 | 08018 | | DRAWING FEE | | 3.57 | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

14. CLAIMANT'S CERTIFICATE

I hereby certify under penalty of perjury, that the material furnished and service rendered is a correct charge against the State of Washington; the claim is just and due; that no part of same has been paid and I am authorized to sign for the payee; and that all goods furnished and/or services rendered have been provided without discrimination on the grounds of handicap, race, creed, color, or national origin.

Subscribed this 20TH day of NOVEMBER, 1979

PROVIDER SIGN HERE (In Ink) X

| | |
|---|---|
| 15. TOTAL CHARGES | 20.71 |
| 16. PAYABLE BY PATIENT (AS PER LETTER OF AWARD) | |
| 17. COVERED BY INSURANCE | |
| 18. BALANCE DUE | |

APPROVED AND ALLOWED IN THE ABOVE AMOUNT OR AS CORRECTED

X

DEPARTMENT USE

| 19. DIAGNOSIS CODE | 20. WRITTEN DIAGNOSIS |
|---|---|
| V 960 | WELL PATIENT EXAM |

21. REQUEST FOR PHYSICIAN SERVICES AND JUSTIFICATION

INTERIM SCREEN JUSTIFICATION: LOW
HEMATOCRIT ON INITIAL SCREEN

22. IF PATIENT WAS REFERRED INDICATE ——→ X FROM TO DOCTOR NAME SELF NUMBER

23. NAME OF PERFORMING PHYSICIAN NUMBER

DEPARTMENT MEDICAL CONSULTANT ACTION TAKEN

1. COMMENTS:

2. THIS REQUEST IS:

☐ APPROVED ☐ DENIED

1. DATE MO. DAY YR.

2. SIGNATURE OF DEPARTMENT MEDICAL CONSULTANT

525 100 (11 78)

# PHYSICIAN INVOICE

INVOICE MUST BE SUBMITTED WITHIN 60 DAYS FROM END OF MONTH FOLLOWING DATE OF SERVICE.

Mail to. Dept. of Social Health Services, Professional Audit and Systems Section, P.O. Box 9243, M.S. LG11, Olympia, Washington 98504

STATE COPY

MEDICAL RECORD NUMBER

STATE OF WASHINGTON
DEPT. OF SOCIAL & HEALTH SERVICES

1. PROVIDER NAME & ADDRESS

PROVIDER NUMBER 1730804

TOM JONES, M.D.
202 JOY STREET
ANYTOWN, WASHINGTON 90000

2. PATIENT NAME

| LAST | FIRST | INITIAL | 3. |
|---|---|---|---|
| SMITH | JAMES | L. | M |

4. ENTER PATIENT IDENTIFICATION FROM HIS IDENTIFICATION COUPON

| INITIALS | BIRTH DATE | LAST NAME | SO |
|---|---|---|---|
| JL | 101576 | SMITH | B |

← ATTACH IDENTIFICATION COUPON WITHIN DOTTED LINES →

SAMPLE 3
REFERRED FOR TREATMENT
CODE Y

PLEASE CHECK APPROPRIATE NAME ON COUPON

5. USE THIS SPACE ONLY IF SERVICE PERFORMED IS PART OF EARLY PERIODIC SCREENING DIAGNOSIS & TREATMENT PROGRAM.

☒ EPSDT SCREEN ☐ EPSDT FOLLOW UP

ENTER APPROPRIATE CODE IN COLUMN 7. BELOW:

1. IN-PATIENT HOSPITAL
2. OUTPATIENT HOSPITAL
3. OFFICE
4. RESIDENCE
5. EMERGENCY ROOM
6. CONGREGATE CARE
7. INTERMEDIATE CARE FACILITY
8. SKILLED NURSING HOME
9. OTHER

ENTER APPROPRIATE TYPE OF SERVICE IN COLUMN 8 BELOW:

1 = ANESTHESIA
2 = ASSISTANT SURGERY
3 = SURGEON—OTHER MEDICAL

## REPORT OF SERVICES RENDERED

| 6. DATE RENDERED MO. | DAY | YR. | 7. PLACE OF SERVICE | 8. TYPE OF SERVICE | 9. CPT-3 CODE | 10. MOD | 11. DESCRIPTION OF SERVICES | 12. DIAGNOSIS CODE | 13. CHARGE | DEPARTMENT USE |
|---|---|---|---|---|---|---|---|---|---|---|
| 10 | 01 | 79 | 3 | 3 | 09011 | Y | ANNUAL SCREENING | FZ | 21.42 | |
| 10 | 01 | 79 | 3 | 3 | 08681 | | HEMATOCRIT | | 2.86 | |
| 10 | 01 | 79 | 3 | 3 | 08936 | | URINALYSIS | | 3.57 | |
| 10 | 01 | 79 | 3 | 3 | 08018 | | DRAWING FEE | | 3.57 | |
| 10 | 01 | 79 | 3 | 3 | 09999 | | IMMUNIZATION UPDATE | | 3.17 | |
| | | | | | | | | | | |
| | | | | | | | | | | |

14. CLAIMANT'S CERTIFICATE

I hereby certify under penalty of perjury, that the material furnished and service rendered is a correct charge against the State of Washington; the claim is just and due; that no part of same has been paid and I am authorized to sign for the payee; and that all goods furnished and/or services rendered have been provided without discrimination on the grounds of handicap, race, creed, color, or national origin.

Subscribed this 20TH day of OCTOBER, 19 79

PROVIDER SIGN HERE (In Ink) X

| | |
|---|---|
| 15. TOTAL CHARGES | 34.59 |
| 16. PAYABLE BY PATIENT (AS PER LETTER OF AWARD) | |
| 17. COVERED BY INSURANCE | |
| 18. BALANCE DUE | |

APPROVED AND ALLOWED IN THE ABOVE AMOUNT OR AS CORRECTED
X
DEPARTMENT USE

| 19. DIAGNOSIS CODE | 20. WRITTEN DIAGNOSIS |
|---|---|
| V 960 | WELL PATIENT EXAM |

21. REQUEST FOR PHYSICIAN SERVICES AND JUSTIFICATION: OTITIS MEDIA

22. IF PATIENT WAS REFERRED INDICATE → ☒ FROM ☐ TO DOCTOR NAME SELF NUMBER

23. NAME OF PERFORMING PHYSICIAN NUMBER

DEPARTMENT MEDICAL CONSULTANT ACTION TAKEN

1. COMMENTS

2. THIS REQUEST IS: ☐ APPROVED ☐ DENIED

1. DATE MO. DAY YR.

2. SIGNATURE OF DEPARTMENT MEDICAL CONSULTANT

525-100 (11-78)
DSHS 6-30

PHYSICIAN INVOICE

INVOICE MUST BE SUBMITTED WITHIN 60 DAYS FROM END OF MONTH FOLLOWING DATE OF SERVICE.

Mail to: Dept. of Social & Health Services, Professional Audit and Systems Section, P.O. Box [illegible], Olympia, Washington [illegible]

STATE OF WASHINGTON
DEPT. OF SOCIAL & HEALTH SERVICES

**1. PROVIDER NAME & ADDRESS**

TOM JONES, M.D.
202 JOY STREET
ANYTOWN, WASHINGTON 90000

**PROVIDER NUMBER** 1730804

**2. PATIENT NAME**

| LAST | FIRST | INITIAL | 3. SEX |
|---|---|---|---|
| SMITH | JAMES | L. | M |

**4. ENTER PATIENT IDENTIFICATION FROM HIS IDENTIFICATION COUPON**

| INITIALS | BIRTH DATE | LAST NAME | SO |
|---|---|---|---|
| JL | 101576 | SMITH | B |

← ATTACH IDENTIFICATION COUPON WITHIN DOTTED LINES →

SAMPLE 4
TREATMENT VISIT

PLEASE CHECK APPROPRIATE NAME ON COUPON

5. USE THIS SPACE ONLY IF SERVICE PERFORMED IS PART OF EARLY PERIODIC SCREENING DIAGNOSIS & TREATMENT PROGRAM.

☐ EPSDT SCREEN ☒ EPSDT FOLLOW UP

ENTER APPROPRIATE CODE IN COLUMN 7. BELOW:

1. IN-PATIENT HOSPITAL
2. OUTPATIENT HOSPITAL
3. OFFICE
4. RESIDENCE
5. EMERGENCY ROOM
6. CONGREGATE CARE
7. INTERMEDIATE CARE FACILITY
8. SKILLED NURSING HOME
9. OTHER

ENTER APPROPRIATE TYPE OF SERVICE IN COLUMN 8 BELOW:

1 = ANESTHESIA
2 = ASSISTANT SURGERY
3 = SURGEON —OTHER MEDICAL

## REPORT OF SERVICES RENDERED

| 6. DATE RENDERED |  |  | 7. PLACE OF SERVICE | 8. TYPE OF SERVICE | SERVICE RENDERED |  |  | 12. DIAGNOSIS CODE | 13. CHARGE | DEPARTMENT USE |
|---|---|---|---|---|---|---|---|---|---|---|
| MO. | DAY | YR. |  |  | 9. CPT-3 CODE | 10. MOD | 11. DESCRIPTION OF SERVICES |  |  |  |
| 10 | 01 | 79 | 3 | 3 | 90050 |  | BRIEF OFFICE CALL |  | 10.00 |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
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|  |  |  |  |  |  |  |  |  |  |  |

### 14. CLAIMANT'S CERTIFICATE

I hereby certify under penalty of perjury, that the material furnished and service rendered is a correct charge against the State of Washington; the claim is just and due; that no part of same has been paid and I am authorized to sign for the payee; and that all goods furnished and/or services rendered have been provided without discrimination on the grounds of handicap, race, creed, color, or national origin.

Subscribed this 20TH day of OCTOBER, 19 79

PROVIDER
SIGN HERE (In Ink) X

|  |  |
|---|---|
| 15. TOTAL CHARGES | 10.00 |
| 16. PAYABLE BY PATIENT (AS PER LETTER OF AWARD) |  |
| 17. COVERED BY INSURANCE |  |
| 18. BALANCE DUE |  |

APPROVED AND ALLOWED IN THE ABOVE AMOUNT OR AS CORRECTED
X
DEPARTMENT USE

| 19. DIAGNOSIS CODE | 20. WRITTEN DIAGNOSIS |
|---|---|
| 472 | UPPER RESPIRATORY INFECTION |

21. REQUEST FOR PHYSICIAN SERVICES AND JUSTIFICATION

22. IF PATIENT WAS REFERRED INDICATE ⟶ ☒ FROM ☐ TO DOCTOR NAME SELF NUMBER

23. NAME OF PERFORMING PHYSICIAN NUMBER

DEPARTMENT MEDICAL CONSULTANT ACTION TAKEN 1. COMMENTS:

☐ APPROVED ☐ DENIED

1. DATE MO. DAY YR. 2. SIGNATURE OF DEPARTMENT MEDICAL CONSULTANT

DSHS 6-30

PHYSICIAN INVOICE

INVOICE MUST BE SUBMITTED WITHIN 60 DAYS FROM END OF MONTH FOLLOWING DATE OF SERVICE

Mail to: Dept. of Social Health Services, Professional Audit and Systems Section, P.O. Box 9143, M.S LG11, Olympia, Washington 98504

STATE COPY

# APPENDIX I

# ICDA GROUPINGS

# APPENDIX I-1

## ICDA Groupings

| | ICDA Range |
|---|---|
| Infective Diseases and Parasites | 000 136 |
| Pinworms | |
| TB | |
| Bacterial infections (scarlet fever/meningitus) | |
| All others in category (incl. lice, diarrhea, poxes, VD) | |
| Nutritional Deficiencies, Endocrine and Metabolic Dis. | 240 279 |
| Diabetes | |
| Nutritional deficiencies (avitaminosis/obesity) | |
| Other endocrine and metabolic dis. (hyperthyroidism, etc.) | |
| Blood Diseases (and blood forming organs) | 280 289 |
| Anemias (iron and other deficiencies) | |
| Sickle cell trait or anemia | |
| Other blood diseases (incl. purpura, etc.) | |
| Mental Disorders | 290 315 |
| Behavioral/emotional | |
| Learning disability | |
| Mental retardation | |
| Speech disorders | |
| Nervous System and Sense Organs | 320 389 |
| Convulsive disorders | |
| Vision problems - refractive (sight loss) | |
| Eye problems - diseases (strabismus, etc.) | |
| Hearing problems (hearing loss) | |
| Ear problems - diseases (otitis media, etc.) | |
| Other diseases in category (epilepsy, sclerosis, etc.) | |
| Circulatory System (heart, arteries, lymphatics, etc.) | 390 458 |
| All conditions (incl. murmur, infarction, etc.) | |
| Respiratory System (nose, throat, lungs, etc.) | 460 519 |
| Acute respiratory infections (colds, flu, pneumonia, etc.) | |
| Chronic respiratory infection (frequent recurrences of) | |
| Asthma | |
| Hay fever and other allergies | |
| Other diseases in category (pleurisy, etc.) | |
| Digestive System (mouth, stomach, intestines, etc.) | 520 577 |
| Dental caries | |
| Other dental and oral problems | |
| Hernias | |
| Other diseases in category (colitis, peritonitis, etc.) | |
| Genito-Urinary System (kidneys, bladder, genitals) | 580 629 |
| All conditions (kidney, bladder, genitals, etc.) | |
| Skin | 680 709 |
| All conditions (incl. impetigo, boils, eczema) | |
| Musculoskeletal (bones, joints, connective tissue) | 710 738 |
| All conditions (incl. skeletal deformities, arthritis, etc.) | |
| Birth Defects | 740 759 |
| All conditions (incl. cleft palate & lip, club foot, etc.) | |
| Birth Problems (perinatal) | 760 779 |
| All conditions (incl. abnormal labor and difficult birth) | |
| Accidents, Poisoning and Violence | 800 999 |
| Lead poisoning | |
| Other conditions in category (incl. fractures and other injury) | |
| All Other Conditions | (140 239; 630 678; 780 796) |
| All others (incl. neoplasms, abortion, symptoms [enuresis]) | |

## APPENDIX I-2

## ICDA CODES AND DESCRIPTION
## FOR ALL PROBLEMS FOUND AT SCREEN

### "Cause for Exam"

| ICDA Code | Description |
|---|---|
| 8.8 | Enteritis - (specific virus) |
| 8.9 | Enteritis - (nonspecific virus) |
| 9.0 | Dysentery |
| 9.1 | Diarrhea |
| 9.2 | Gastroenteritis and colitis |
| 11.0 | Pulmonary tuberculosis (active, minimal) |
| 52.0 | Chickenpox |
| 57.0 | Viral exanthem (erythema infectiosum) |
| 57.9 | Viral exanthem (unspecified) |
| 75.0 | Infectious mononucleosis |
| 79.0 | Molluscum contagiosum |
| 79.1 | Viral warts |
| 98.0 | Gonococcal infection (acute of genitourinary tract) |
| 98.2 | Gonococcal infection (of eye) |
| 110.0 | Dermatophytosis of scalp (tinea)(ringworm) |
| 110.1 | Athlete's foot |
| 110.9 | Dermatophytosis of other sites |
| 111.9 | Unspecific dermatomycosis |
| 112.0 | Monilia |
| 121.0 | Opisthorchiasis (fluke) |
| 127.3 | Pin worm |
| 132.0 | Pediculosis |
| 133.0 | Scabies |
| 136.0 | Other infective parasitic diseases |
| 189.0 | Wilms tumor |
| 250.9 | Diabetes without acidosis |
| 290.0 | Senile dementia |
| 295.8 | Other schizophrenia |
| 301.1 | Paranoid (personality disorder) |
| 301.8 | Immature personality |
| 304.0 | Drug dependence |
| 305.5 | GI problems - psychogenic origin |
| 305.6 | Genitourinary problems - psychogenic |
| 306.8 | Cephalalgia - headache |
| 308.0 | Behavior disorders of childhood |
| 308.1 | Behavior disorders of childhood |
| 308.4 | Bheavior disorders of childhood |
| 321.0 | Thrombophelibitis |
| 330.4 | Myotonia - muscular dystrophy |
| 345.1 | Generalized convulsive epilepsy |
| 345.9 | Other epilepsy |
| 346.0 | Migraine |
| 351.0 | Trigeminal neuralgia |
| 360.0 | Conjunctivitis |
| 361.0 | Blepharitis |

| ICDA Code | Description |
|---|---|
| 368.0 | Inflammation of lacrimal glands and ducts |
| 380.0 | Otitis externa |
| 381.0 | Acute Otitis media |
| 384.0 | Other inflammatory diseases of the ear |
| 384.9 | Other and unspecified inflammatory diseases of the ear |
| 387.0 | Other diseases of ear and mastoid process |
| 410.0 | Acute myocardial infarction |
| 445.0 | Gangrene |
| 456.1 | Varicocele |
| 457.0 | Noninfective disease of lymphatic channels |
| 461.0 | Acute sinusitis |
| 462.0 | Acute pharyngitis |
| 463.0 | Acute tonsillitis |
| 463.4 | Acute tonsillitis |
| 464.0 | Acute laryngitis and tracheitis |
| 465.0 | Acute upper respiratory infection of multiple or unspecified sites |
| 466.0 | Acute bronchitis and bronchiolitis |
| 470.0 | Influenza, unqualified |
| 472.0 | Influenza with other respiratory manifestations |
| 480.0 | Viral pneumonia |
| 482.0 | Other bacterial pneumonia |
| 485.0 | Bronchopneumonia, unspecified |
| 486.0 | Pneumonia, unspecified |
| 490.0 | Bronchitis, unqualified |
| 493.0 | Asthma |
| 493.1 | Asthma |
| 535.0 | Gastritis and duodenitis |
| 540.0 | Acute appendicitis with peritonitis |
| 553.1 | Umbilical hernia |
| 561.0 | Gastroenteritis and colitis, except ulcerative, of noninfection origin |
| 590.0 | Infections of kidney |
| 593.6 | Disease of ureter |
| 595.0 | Cystitis |
| 597.0 | Urethritis (nonvenereal) |
| 599.0 | Other diseases of urinary tract |
| 599.9 | Other and unspecified diseases of urinary tract |
| 607.3 | Balanitis |
| 607.5 | Other inflammatory diseases of male genital organs |
| 607.9 | Other disease of male genital organs |
| 611.0 | Other disease of breast |
| 616.0 | Diseases of parametrium and pelvic perioteneum (female) |
| 626.3 | Excessive disorders of menstruation |
| 626.9 | Other menstrual disorders |
| 680.0 | Boil and carbuncle, face |
| 680.6 | Boil and carbuncle of other parts of lower extremity |
| 682.0 | Other cellulitis and abscess, head and neck |
| 682.4 | Other cellulitis and abscess of leg |
| 683.0 | Acute lymphadenitis |
| 684.0 | Impetigo |
| 686.0 | Other local infections of skin and subcutaneous tissue |
| 686.1 | Pyogenic granuloma |

| ICDA Code | Description |
|---|---|
| 686.9 | Other local infections of skin and subcutaneous tissue |
| 695.0 | Erythematous conditions |
| 698.1 | Pruritus of genital organs |
| 701.3 | Keloid scar |
| 701.9 | Other hypertrophic and atrophic conditions of skin |
| 702.0 | Other dermatoses |
| 703.0 | Diseases of nail, ingrown nail |
| 706.1 | Other acne |
| 706.2 | Sebaceous cyst |
| 708.0 | Urticaria |
| 709.0 | Other diseases of skin, cicatrix, painful scar |
| 709.9 | Other diseases of skin, intertrigo |
| 710.0 | Acute arthritis due to pyogenic organisms |
| 715.0 | Arthritis, unspecified |
| 717.2 | Torticollis not specified as congenital, psychogenic or traumatic |
| 728.9 | Vertebrogenic pain syndrome, other and unspecified backache |
| 729.9 | Disease, joint |
| 741.0 | Spina bifida |
| 741.9 | Spina bifida without mention of hydrocephalus |
| 742.0 | Congenital hydrocephalus |
| 743.1 | Microcephalus |
| 749.1 | Cleft lip |
| 749.2 | Cleft palate with cleft lip |
| 751.3 | Atresia and stenosis of rectum and anal canal |
| 752.4 | Congenital hydrocele |
| 754.1 | Talipes equinovarus |
| 759.3 | Down's disease |
| 759.8 | Other specified syndromes |
| 775.9 | Hemolytic disease of newborn with mention of kernicterus without mention of cause |
| 777.0 | Immaturity, unqualified |
| 778.9 | Other conditions of fetus or newborn, unspecified |
| 780.0 | Certain symptoms referable to nervous system and special senses, coma and stupor |
| 780.2 | Convulsions |
| 780.3 | Abnormal involuntary movement |
| 780.4 | Disturbance of coordination |
| 780.5 | Vertigo |
| 780.6 | Disturbance of sleep |
| 782.0 | Symptoms referable to cardiovascular and lymphatic system |
| 782.6 | Edema and dropsy |
| 783.0 | Symptoms referable to respiratory system, epistaxis |
| 783.2 | Dyspnea |
| 783.7 | Pain in chest |
| 784.0 | Symptoms referable to upper gastrointestinal tract, anorexia |
| 784.1 | Nausea and vomitting |
| 785.0 | Symptoms referable to abdomen and lower gastrointestinal tract, abdominal swelling (not referable to any particular organ) |
| 785.2 | Jaundice (not of newborn) |
| 785.5 | Abdominal pain |
| 785.6 | Incontinence of feces |
| 786.0 | Symptoms referable to genitourinary system, pain referable to urinary system |

| ICDA Code | Description |
|---|---|
| 786.2 | Incontinence of urine |
| 787.1 | Symptoms referable to limbs and joints, pain in limb |
| 787.3 | Pain in joint |
| 787.5 | Difficulty in walking |
| 788.2 | Rash |
| 788.5 | Tetany |
| 790.2 | Depression |
| 791.0 | Headache |
| 793.8 | Other specified |
| 796.1 | Malingering |
| 796.9 | Other unknown and unspecified causes of morbidity and mortality |
| 802.4 | Fracture of face bones, other, closed |
| 803.0 | Other and unqualified skull fracture |
| 810.0 | Fracture of clavicle |
| 815.0 | Fracture of metacarpal bones, closed |
| 818.0 | Other, multiple and ill-defined fractures of upper limb, closed |
| 827.0 | Other, multiple and ill-defined fractures of lower limb, closed |
| 830.0 | Dislocation of jaw, simple |
| 844.0 | Sprains and strains of knee and leg |
| 845.0 | Sprains and strains of ankle and foot |
| 863.0 | Injury to gastrointestinal tract without mention of open wound into cavity |
| 868.0 | Injury to other and unspecified intra-abdominal organs |
| 870.0 | Open wound of eye and orbit |
| 873.0 | Other and unspecified laceration of head |
| 873.9 | Late effect, nose, other face, and scalp |
| 880.0 | Open wound of should and upper arm |
| 883.0 | Open wound of finger |
| 891.0 | Open wound of knee, leg (except thigh), and ankle |
| 892.0 | Open wound of foot, except toe(s) alone |
| 910.0 | Superficial injury of face, neck and scalp |
| 911.0 | Superficial injury to trunk without mention of infection |
| 916.0 | Superficial injury of hip, thigh, leg and ankle |
| 918.0 | Superficial injury of other, multiple and unspecified sites |
| 920.0 | Contusion of face, scalp and neck except eye(s) |
| 921.0 | Contusion of eye and orbit |
| 922.0 | Contusion of trunk |
| 924.0 | Contusion of elbow, forearm, and wrist |
| 932.0 | Foreign body in nose |
| 940.0 | Burn confined to eye |
| 941.9 | Burn confied to face, head, and neck, late effect |
| 943.0 | Burn confined to upper limb, except wrist and hand, unspecified degree, without mention of complications |
| 945.0 | Burn confied to lower limb(s) |
| 953.6 | Injury to nerve(s) in forearm |
| 970.9 | Adverse effect of psychotherapeutics |
| 996.3 | Injury, other and unspecified, elbow, forearm, wrist |
| 996.8 | Injury, other and unspecified sites, including multiple |

## "Found at Screen"

| ICDA Code | Description |
|---|---|
| 182.7 | Malignant neoplasm of uterus |
| 239.9 | Neoplasm of unspecified nature of other and unspecified sites |
| 240.9 | Simple goiter |
| 258.9 | Polyglandular dysfunction and other diseases of endocrine glands |
| 260.0 | Vitamin A deficiency, night blindness |
| 260.9 | Unspecified Vitamin A deficiency |
| 269.1 | Malabsorption syndrome unspecified |
| 269.2 | Nutritional deficiency |
| 272.0 | Congenital disorders of lipid metabolism, xanthomatosis |
| 275.9 | Plasma protein abnormalities, other and unspecified |
| 277.0 | Obesity not specified as of endocrine origin |
| 279.0 | Other and unspecified metabolic diseases |
| 280.0 | Iron deficiency anemias |
| 281.9 | Other and unspecified deficiency anemia |
| 282.2 | Anemias due to glucose-6-phosphate dehydrogenase deficiency |
| 282.5 | Hemoglobinopathies |
| 284.4 | Aplastic anemia |
| 285.0 | Hypochromic anemia with iron loading |
| 285.9 | Anemia, unspecified |
| 286.1 | Christmas disease |
| 287.1 | Thrombocytopenia |
| 289.0 | Other diseases of blood and blood-forming organs, polycythemia, secondary |
| 289.9 | Other and unspecified diseases of blood and blood-forming organs |
| 306.3 | Psychomotor disorders |
| 306.9 | Other special symptom not classified elsewhere |
| 310.0 | Borderline mental retardation |
| 311.0 | Mild mental retardation |
| 312.0 | Moderate mental retardation |
| 314.9 | Profound mental retardation |
| 315.0 | Unspecified mental retardation |
| 315.8 | Unspecified mental retardation |
| 315.9 | Unspecified mental retardation |
| 345.0 | Epilepsy |
| 370.0 | Refractive errors |
| 370.1 | Hyperopia |
| 370.3 | Astigmatism |
| 370.9 | Other and unspecified refractive errors |
| 373.0 | Strabismus |
| 373.9 | Other and unspecified strabismus |
| 377.2 | Ambylopia |
| 378.2 | Other diseases of eyelid |
| 378.3 | Diseases of conjunctiva and lacrimal tract |
| 378.6 | Other diseases of iris, choroid, and uveal tract |
| 378.9 | Diseases of eyeball, ocular muscle and orbit |
| 379.1 | Blindness, both eyes, not specifically defined |
| 387.1 | Wax in ear |

| ICDA Code | Description |
|---|---|
| 387.2 | Perforation of tympanic membrane, nontraumatic |
| 389.1 | Deafness, one ear, and partial deafness in other |
| 389.9 | Impairment of hearing, one or both ears |
| 392.9 | Chorea without mention of heart involvement |
| 401.0 | Essential benign hypertension |
| 424.0 | Chronic disease of endocardium |
| 424.9 | Chronic diseases of endocardium and other endocardial structurs |
| 427.5 | Paroxysmal tachycardia (atrial) |
| 427.9 | Other and unspecified disorders of heart rhythm |
| 429.9 | Other and unspecified heart disease |
| 458.0 | Hypotension |
| 500.0 | Hypertrophy of tonsils and adenoids |
| 520.0 | Disorders of tooth development and eruption |
| 520.6 | Disturbances in tooth eruption |
| 521.0 | Dental caries |
| 521.9 | Other and unspecified diseases of hard tissues of teeth |
| 523.0 | Periodontal diseases, gingivitis |
| 523.1 | Chronic gingivitis |
| 523.6 | Accretions on teeth |
| 524.2 | Anomalies of dental arch relationship |
| 524.3 | Anomalies of tooth position |
| 524.4 | Malocclusion, unqualified |
| 524.5 | Dento-facial functional abnormalities |
| 525.0 | Other diseases and conditions of the teeth and supporting structures, acquired absence of teeth |
| 530.9 | Diseases of esophagus |
| 552.0 | Inguinal hernia with obstruction |
| 564.0 | Functional disorders of intestines, constipation |
| 581.0 | Nephrotic syndrome |
| 598.0 | Stricture of urethra |
| 610.0 | Chronic cyst disease of breast |
| 611.1 | Hypertrophy of breast |
| 615.9 | Other disease of ovary and fallopian tube |
| 621.9 | Other diseases of cervix |
| 629.2 | Kraurosis of vulva |
| 706.0 | Diseases of sebaceous glands |
| 723.9 | Other diseases of bone |
| 731.6 | Synovitis, bursitis, and tenosynovitis of knee |
| 735.0 | Curvature of spine, scoliosis |
| 735.8 | Curvature of spine |
| 736.0 | Flat foot |
| 738.5 | Other deformities of leg |
| 743.4 | Neurofibromatosis |
| 744.7 | Congenital blepharoptosis |
| 744.8 | Other specified anomalies of eye |
| 745.3 | Unspecified anomalies of ear |
| 746.0 | Congenital anomalies of heart |
| 746.3 | Tetralogy of Fallot |
| 746.9 | Unspecified anomalies of heart |
| 747.6 | Other anomalies of peripheral vascular system |
| 748.3 | Other anomalies of larynx, trachea, and bronchus |
| 752.6 | Anomalies of vagina and external female genitalia |
| 753.6 | Atresia and stenosis of urethra and bladder neck |
| 753.9 | Unspecified anomalies of urinary system |

| ICDA Code | Description |
|---|---|
| 756.2 | Other anomalies of spine |
| 756.4 | Other anomalies of ribs and sternum |
| 756.7 | Other generalized anomalies of skeleton |
| 756.8 | Other specified anomalies of muscle, tendon, and fascia |
| 756.9 | Unspecified anomalies of musculoskeletal system |
| 758.8 | Other specified congenital anomaly |
| 759.0 | Congenital syndromes affecting multiple systems |
| 781.7 | Encephalopathy |
| 782.8 | Splenomegaly |
| 787.6 | Abnormality of gait |
| 788.3 | Subcutaneous nodules |
| 789.0 | Abnormal urinary constituents of unspecified cause |
| 789.1 | Pyuria and bacteriuria |
| 789.3 | Hematuria |
| 789.5 | Glycosuria |

## "Could be Either"

| ICDA Code | Description |
|---|---|
| 0 | Immunization |
| 011.9 | Pulmonary tuberculosis |
| 039.9 | Other bacterial diseases |
| 077.7 | Molluscum contagiosum |
| 079.3 | Cat scratch disease |
| 079.9 | Viral infection, unspecified |
| 090.2 | Early congenital syphilis, unspecified |
| 090.9 | Congenital syphilis, unspecified |
| 099.1 | Lymphogranuloma venereum |
| 207.0 | Leukemia |
| 216.0 | Benign neoplasm of skin |
| 227.0 | Hemangioma and lymphangioma |
| 243.0 | Cretinism of congenital origin |
| 244.0 | Myxedema |
| 250.0 | Diabetes mellitus |
| 269.9 | Other and unspecified nutritional deficiency |
| 278.1 | Carotinemia |
| 306.0 | Stammering and stuttering |
| 306.1 | Specific learning disturbance |
| 306.4 | Specific disorders of sleep |
| 306.7 | Encopresis |
| 343.0 | Cerebral spastic infantile paralysis |
| 343.1 | Other spastic paralysis |
| 343.9 | Other and unspecified cerebral spastic infantile paralysis |
| 381.1 | Chronic otitis media without mention of mastoiditis |
| 381.9 | Unspecified otitis media |
| 460.0 | Acute nasopharyngitis |
| 502.0 | Chronic pharyngitis and nasopharyngitis |
| 502.1 | Chronic nasopharyngitis |
| 503.9 | Sinusitis (chronic), other and unspecified |
| 506.0 | Chronic laryngitis |
| 507.0 | Hay fever |
| 507.2 | Hay fever |
| 508.0 | Other diseases of upper respiratory tract |
| 508.9 | Other and unspecified diseases of upper respiratory tract |
| 527.2 | Sialoadenitis |
| 527.6 | Mucocele |
| 528.4 | Oral cysts |
| 550.0 | Inguinal hernia without mention of obstruction |
| 551.0 | Other hernia of abdominal cavity without mention of obstruction |
| 551.1 | Umbilical hernia |
| 551.2 | Ventral hernia |
| 565.0 | Anal fissure and fistula |
| 569.2 | Other rectal and anal diseases |
| 569.9 | Other diseases of intestines and peritoneum |
| 590.1 | Other pyelonephritis, pyelitis, and pyelocystitis |
| 603.0 | Hydrocele |
| 603.9 | Hydrocele |

| ICDA Code | Description |
|---|---|
| 605.0 | Redundant prepuce and phimosis |
| 622.1 | Vaginitis and vulvitis |
| 629.3 | Leukorrhea |
| 629.9 | Other diseases of female genital organs |
| 690.0 | Seborrheic dermatitis |
| 691.0 | Infantile exzema and related conditions |
| 692.0 | Other exzema and dermatitis |
| 692.1 | Eczema and dermatitis due to oils and greases |
| 692.2 | Eczema and dermatitis due to solvents |
| 692.3 | Eczema and dermatitis due to drugs |
| 692.4 | Eczema and dermatitis due to chemicals |
| 692.5 | Eczema and dermatitis due to food |
| 692.8 | Eczema and dermatitis due to sunburn |
| 692.9 | Eczema and dermatitis due to other and unspecified cause |
| 704.0 | Diseases of hair and hair follicles |
| 705.1 | Prickly heat |
| 705.9 | Other diseases of sweat glands |
| 706.3 | Seborrhea |
| 723.3 | Cyst of bone, except jaw |
| 733.6 | Residual foreign body in tissue or bone |
| 733.9 | Other and unspecified diseases of muscle, tendon and fascia |
| 735.1 | Kyphosis |
| 738.3 | Other deformities of fingers |
| 738.6 | Deformities of ankle and foot, excluding toes, acquired |
| 738.9 | Deformities of unspecified sites |
| 751.4 | Congenital anomalies of intestine |
| 752.1 | Undescended testicle |
| 752.2 | Hypospadias |
| 754.8 | Talipes, other specified types |
| 754.9 | Talipes, unspecified type |
| 755.0 | Other congenital anomalies of limbs, polydactyly |
| 755.1 | Syndactyly |
| 755.5 | Other anomaly of upper limb |
| 755.6 | Congenital dislocation of hip |
| 755.7 | Other anomaly of lower limb |
| 756.0 | Other congenital anomalies of musculoskeletal system |
| 757.2 | Other specified anomalies of skin |
| 781.0 | Disturbance of vision except defective sight |
| 781.1 | Oculomotor disturbance |
| 781.3 | Disturbance of hearing except deafness |
| 781.5 | Disturbance of speech |
| 783.3 | Cough |
| 784.2 | Pylorospasm |
| 786.3 | Frequency of micturition |
| 786.4 | Polyuria |
| 788.4 | Loss of weight |
| 788.6 | Pyrexia of unknown origin |
| 796.0 | Other ill-defined and unknown causes of morbidity and mortality |
| 989.4 | Toxic effect of venom |
| 994.2 | Effects of hunger |
| 994.9 | Electrocution and nonfatal effects of electric current |

# APPENDIX J

# APPENDICES TO MEDICAID COST STUDY

# APPENDIX J-1

## SAMPLING PROCEDURE AND RESEARCH METHODOLOGY FOR MEDICAID COST STUDY

### Sample Design

The sample for the Medicaid cost study was selected so as to include an approximately equal number of screened and unscreened children. Two sampling frames were utilized: one for children screened during the experimental phase of the project, and the second for all other eligible children. A portion of the latter - estimated beforehand at 20% - were expected to have been screened outside the experimental project. The initial sampling procedure, therefore, selected approximately 600 project children and about 900 of uncertain screening status.

The project sample was selected from the masterfile list of children with at least one experimental screen prior to December 31, 1977. Since experimental screening had begun on approximately August 15th, this frame included the first four and a half months of project screening. An SPSS sampling procedure was used to select approximately two-thirds of these children.

The non-project sample was selected from a computerized listing of Pierce County eligibles, provided to us by the Washington State Office of Information Services. We knew beforehand that some of the children on this tape would have more than one pic code, due to multiple registration or to name changes, but we expected the month and day of birth to be the same for each of a child's codes. We therefore used birth date (month and day of birth) as our criterion for inclusion into the sample. Since health care costs were expected to be higher for infants, we used separate sampling fractions for children born during 1977.

Children born in 1976 or earlier were included in the sample if their birth date was February 1st, March 18th, April 7th, May 27th, August 16th, September 6th, December 6th or December 26th. Infants were selected if they had one of the following birth dates:

January 21 to 31, 1977
February 11 to 20, 1977
March 21 to 31, 1977
April 21 to 30, 1977
May 11 to 20, 1977
July 11 to 20, 1977
August 11 to 20, 1977
October 11 to 20, 1977

These birth dates were selected randomly after stratifying by quarter of the year; the birth dates for infants were first grouped into ten day periods to simplify programming.

The non-project sample had to be edited to exclude:

-children screened in the experimental project, and

-children with less than one month of eligibility after October 1, 1976.

All other pic codes with the birth date shown were sent to the project so that profiles could be obtained. In analyzing the profiles later on, we combined the records for children with multiple codes.

During the process of determining eligibility periods for persons screened in the project, it became apparent that about 40% of project children were missing from the OIS eligibility tape. Upon looking into this, OIS discovered that certain children with open-ended eligibility had been omitted. A new tape was run, and a supplemental sample was selected using the same sampling procedure as before. The resulting supplemental sample was reduced by half, however, because the data were received late and after HSRI had already analyzed a very large number of profiles. These cases were given a weighting factor of two in the analysis to compensate for underrepresentation.

In final calculations it became necessary to exclude children for whom profiles or eligibility date were missing for either the period before or after screening. We also excluded children with one month or less eligibility before screening, since these were usually infants with extremely high hospitalization costs during the first month of life.

## Research Methodology

The basic objective of this study was to calculate and compare Medicaid costs before and after a cutoff date for different groups of children. For children with at least one EPSDT screen between November 1, 1976 and December 31, 1978, this cutoff date was defined as the date of the first screen. For unscreened children, we set an arbitrary date, October 31, 1977, since this was expected to be the median screen date for those with screens. For each group of children Medicaid costs were calculated between October 1, 1976, and the cutoff date, and between the latter date and December 31, 1978.

Costs were broken down into seven categories, namely, office, hospital inpatient, emergency room, dental, pharmacy, hospital outpatient and other*. In the analysis stage, however, the latter four categories were combined, because they were small and had high variances.

Respondent's cutoff dates varied widely, and this necessitated calculation of costs on a monthly basis. For children born before October, 1976, the denominator for such calculations was the number of months between October 1, 1976, and the cutoff date; while for those born later, it was the interval between birth and cutoff. As explained in the text, we also calculated costs per actual month of eligibility in order to allow for the effects of a case finding activity.

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*The Medicaid profile did not distinguish dental from office costs, but the description of services allowed us to make the distinction. Major hospitalization costs were often reported under the heading of "emergency room", but we separated out those costs that were actually for hospital inpatient care. "Other" costs were mostly for convalescent care and taxis.

## TABLE J-2: CHILDREN IN THE MEDICAID SAMPLE, CLASSIFIED BY SCREENING CATEGORY AND AGE AT THE CUTOFF DATE*

| | All Ages | Under 1 | 1-6 | 7-13 | 14-20 |
|---|---|---|---|---|---|
| | | | Numbers | | |
| Unscreened | 546(496)** | 94(87) | 159(138) | 154(139) | 139(132) |
| Screened | 801(763) | 281(260) | 303(296) | 150(144) | 67(63) |
| Total | 1347(1259) | 375(347) | 462(434) | 304(283) | 206(195) |
| | | | Percentages | | |
| Unscreened | 100.0% | 17.2(17.5) | 29.1(27.8) | 28.2(28.0) | 25.5(26.6) |
| Screened | 100.0% | 35.1(34.1) | 37.8(38.8) | 18.7(18.9) | 8.4(8.3) |
| Total | 100.0% | 27.8(27.6) | 34.3(34.5) | 22.6(22.5) | 15.3(15.5) |
| Proportion Unscreened | 40.5% | 25.1(25.1) | 34.4(31.8) | 50.7(49.1) | 67.4(67.7) |

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*For screened children, the cutoff date was the date of the first EPSDT screen after October 1, 1976. For unscreened children, the cutoff date was October 31, 1977.

**Numbers in parentheses are unweighted.

## TABLE J-3: SCREENED CHILDREN IN THE MEDICAID SAMPLE, CLASSIFIED BY WHETHER OR NOT SCREENED IN THE EXPERIMENTAL PHASE OF THE PROJECT

| | All Ages | Under 1 | 1-6 | 7-13 | 14-20 |
|---|---|---|---|---|---|
| | | Numbers | | | |
| Project | 491(491)* | 126(126) | 224(224) | 104(104) | 37(37) |
| Non-project | 310(272) | 155(134) | 79(72) | 46(40) | 30(26) |
| Total | 801(763) | 281(260) | 303(296) | 150(144) | 67(63) |
| | | Percentages | | | |
| Project | 100.0% | 25.7(25.7) | 45.6(45.6) | 21.2(21.2) | 7.5(7.5) |
| Non-project | 100.0% | 50.0(49.3) | 25.5(26.5) | 14.8(14.7) | 9.7(9.6) |
| Proportion project | 61.3% | 44.8 | 73.9 | 69.3 | 55.2 |

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*Numbers in parentheses show the unweighted sample.

## TABLE J-4: PROPORTION OF TIME ELIGIBLE FOR MEDICAID BENEFITS

| | BEFORE CUTOFF* | | | | | AFTER CUTOFF | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | All Ages | Under 1 | 1-6 | 7-13 | 14-20 | All Ages | Under 1 | 1-6 | 7-13 | 14-20 |
| Never Screened | 62.1% | 43.3% | 64.2% | 67.0% | 67.0% | 45.2% | 34.9% | 53.1% | 44.4% | 44.1% |
| Screened Total | 68.5 | 61.0 | 68.7 | 78.4 | 77.2 | 67.2 | 54.0 | 74.4 | 77.6 | 67.2 |
| -Non-Project | 70.8 | 62.0 | 69.2 | 94.3 | 83.9 | 60.7 | 53.8 | 69.3 | 68.5 | 61.8 |
| -Project | 67.1 | 59.7 | 68.5 | 71.2 | 71.8 | 71.3 | 54.2 | 76.2 | 81.6 | 71.6 |

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*For screened children, the cutoff date was the date of the first EPSDT screen after October 1, 1976. For unscreened children, the cutoff date was October 31, 1977.

## TABLE J-5: NUMBER OF PERSON-MONTHS BEFORE AND AFTER CUTOFF*

| | BEFORE | | | | | AFTER | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Total | Under 1 | 1-6 | 7-13 | 14-20 | Total | Under 1 | 1-6 | 7-13 | 14-20 |
| | | | | | Eligible Months | | | | | |
| Unscreened | 3561 | 281 | 1028 | 1149 | 1103 | 3583 | 585 | 1183 | 964 | 851 |
| Screened | 4637 | 660 | 2089 | 1271 | 617 | 9041 | 3164 | 3545 | 1703 | 629 |
| (-Non-project) | (1643) | (397) | (531) | (420) | (295) | (2991) | (1582) | (758) | (417) | (234) |
| (-Project) | (2994) | (263) | (1558) | (851) | (322) | (6050) | (1582) | (2787) | (1286) | (395) |
| Total | 8198 | 941 | 3117 | 2420 | 1720 | 12624 | 3749 | 4728 | 2667 | 1480 |
| | | | | | Total Months | | | | | |
| Unscreened | 5719 | 637 | 1686 | 1722 | 1674 | 8105 | 1775 | 2229 | 2166 | 1935 |
| Screened | 6807 | 1095 | 3227 | 1688 | 797 | 14118 | 6114 | 4810 | 2254 | 940 |
| (-Non-project) | (2296) | (654) | (830) | (460) | (352) | (5372) | (3153) | (1159) | (674) | (386) |
| (-Project) | (4511) | (441) | (2397) | (1228) | (445) | (8746) | (2961) | (3651) | (1580) | (554) |
| Total | 12526 | 1732 | 4913 | 3410 | 2471 | 22223 | 7889 | 7039 | 4420 | 2875 |

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*For screened children, the cutoff date was the date of the first EPSDT screen after October 1, 1976. For unscreened children, the cutoff date was October 31, 1977.

TABLE J-6: AVERAGE MONTHLY MEDICAID COST PER SCREENED CHILD BEFORE AND AFTER FIRST SCREENING (ADJUSTED FOR ELIGIBILITY)

BEFORE CUTOFF

| | | <1 | 1-6 | 7-13 | 14-20 | Total | Std.* |
|---|---|---|---|---|---|---|---|
| SCREENED (NON-PROJECT) | Office | $ 3.52 | $ 3.68 | $ 5.64 | $ 6.51 | $ 4.65 | $ 5.18 |
| | Hospital Inpatient | 51.93 | 10.53 | 0.16 | 15.74 | 18.82 | 12.06 |
| | Emergency Room | 2.49 | 1.91 | 1.52 | 3.02 | 2.15 | 2.17 |
| | Other | 1.81 | 3.28 | 9.05 | 11.40 | 5.86 | 7.54 |
| | TOTAL | $59.75 | $19.39 | $16.38 | $36.66 | $31.47 | $26.95 |
| SCREENED (PROJECT) | Office | $ 6.67 | $ 3.33 | $ 3.54 | $ 6.33 | $ 4.00 | $ 4.59 |
| | Hospital Inpatient | 121.03 | 5.98 | 10.89 | 0.00 | 16.84 | 14.79 |
| | Emergency Room | 2.95 | 3.43 | 1.91 | 2.07 | 2.81 | 2.48 |
| | Other | 36.49 | 4.15 | 6.83 | 11.21 | 8.51 | 9.75 |
| | TOTAL | $167.13 | $16.88 | $23.17 | $19.60 | $32.16 | $31.61 |

AFTER CUTOFF

| | | <1 | 1-6 | 7-13 | 14-20 | Total | Std.* |
|---|---|---|---|---|---|---|---|
| SCREENED (NON-PROJECT) | Office | $11.61<br>(10.84)** | $ 8.99<br>( 7.95) | $ 8.52<br>( 6.00) | $ 6.10<br>( 5.27) | $10.09<br>( 9.00) | $ 8.15<br>( 6.72) |
| | Hospital Inpatient | 16.10 | 8.48 | 7.73 | 8.45 | 12.41 | 8.83 |
| | Emergency Room | 3.38 | 3.48 | 1.94 | 2.47 | 3.14 | 2.66 |
| | Other | 4.45 | 5.26 | 7.68 | 7.82 | 5.37 | 6.77 |
| | TOTAL | $35.55<br>(34.78) | $26.22<br>(25.18) | $25.88<br>(23.35) | $24.85<br>(24.02) | $31.00<br>(29.91) | $26.41<br>(24.98) |
| SCREENED (PROJECT) | Office | $13.31<br>(12.63) | $ 7.84<br>( 7.09) | $ 6.79<br>( 6.10) | $11.07<br>(10.15) | $ 9.26<br>( 8.53) | $ 8.93<br>( 8.16) |
| | Hospital Inpatient | 18.78 | 5.05 | 6.03 | 29.19 | 10.42 | 13.93 |
| | Emergency Room | 3.20 | 2.05 | 1.54 | 2.53 | 2.27 | 2.12 |
| | Other | 4.58 | 6.56 | 8.65 | 11.00 | 6.78 | 8.45 |
| | TOTAL | $39.87<br>(39.20) | $21.50<br>(20.75) | $23.00<br>(22.31) | $53.79<br>(52.88) | $28.73<br>(28.00) | $33.43<br>(32.66) |

*Total standardized on age distribution of unscreened children before the cutoff.
**Figures in parentheses exclude treatment costs on the day of screen.

## TABLE J-7: STANDARD DEVIATIONS FOR TABLES 9 AND J-6

| | | BEFORE CUTOFF | | | | | AFTER CUTOFF | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ≤1 | 1-6 | 7-13 | 14-20 | Total | ≤1 | 1-6 | 7-13 | 14-20 | Total |
| NOT SCREENED | Office | $ 5.24 | $ 4.48 | $ 5.40 | $ 7.09 | $ 5.80 | $ 3.51 | $ 4.64 | $ 3.53 | $ 7.34 | # 5.11 |
| | Hospital Inpatient | 294.80 | 30.15 | 7.11 | 77.49 | 97.28 | 147.57 | 48.26 | 14.21 | 117.45 | 88.44 |
| | Emergency Room | 3.64 | 3.43 | 3.83 | 5.32 | 4.27 | 3.68 | 5.48 | 1.98 | 3.87 | 4.12 |
| | Other | 4.47 | 7.50 | 9.53 | 33.59 | 20.21 | 4.02 | 7.46 | 9.69 | 22.48 | 13.07 |
| | TOTAL | $296.93 | $32.65 | $15.23 | $102.96 | $105.40 | $150.26 | $53.42 | $18.62 | $136.15 | $96.57 |
| SCREENED TOTAL | Office | $ 8.56 | $ 7.53 | $ 6.29 | $11.46 | $ 8.07 | $ 7.97<br>(7.84)* | $ 9.26<br>(9.15) | $12.91<br>(8.75) | $ 9.41<br>(8.52) | $ 9.91<br>(8.89) |
| | Hospital Inpatient | 459.70 | 32.95 | 144.77 | 37.34 | 192.59 | 44.41 | 18.64 | 41.39 | 48.19 | 36.70 |
| | Emergency Room | 10.16 | 9.08 | 3.67 | 4.36 | 7.64 | 5.45 | 3.93 | 3.03 | 3.39 | 4.40 |
| | Other | 202.35 | 11.32 | 10.00 | 16.56 | 77.19 | 6.42 | 8.23 | 9.90 | 10.08 | 8.32 |
| | TOTAL | $610.42 | $41.38 | $149.37 | $45.96 | $246.92 | $ 51.67<br>(51.64) | $27.26<br>(27.18) | $55.74<br>(51.37) | $51.49<br>(51.38) | $45.35<br>(44.34) |
| SCREENED (NON-PROJECT) | Office | $ 5.60 | $10.54 | $ 6.42 | $ 7.49 | $ 8.09 | $ 7.67<br>(7.53) | $10.46<br>(10.34) | $22.73<br>(12.38) | $11.14<br>( 9.06) | $11.98<br>( 9.44) |
| | Hospital Inpatient | 323.31 | 39.31 | 1.48 | 52.83 | 163.06 | 45.42 | 24.88 | 60.38 | 29.71 | 42.88 |
| | Emergency Room | 11.52 | 4.46 | 3.33 | 4.48 | 6.72 | 6.57 | 4.99 | 3.82 | 3.61 | 5.70 |
| | Other | 5.04 | 9.00 | 10.41 | 14.27 | 10.52 | 7.02 | 7.26 | 11.14 | 9.04 | 8.04 |
| | TOTAL | $328.35 | $44.32 | $14.40 | $58.85 | $166.17 | $ 53.75<br>(53.67) | $32.24<br>(32.37) | $92.91<br>(81.93) | $38.70<br>(37.88) | $55.96<br>(53.49) |
| SCREENED (PROJECT) | Office | 11.44 | 6.18 | 6.11 | 14.16 | 8.06 | $ 8.17<br>(8.03) | $ 8.89<br>(8.80) | $ 7.28<br>(7.20) | $ 7.65<br>(7.63) | $ 8.70<br>(8.61) |
| | Hospital Inpatient | 608.82 | 30.41 | 176.85 | 0.00 | 207.04 | 43.36 | 16.47 | 32.98 | 54.94 | 33.21 |
| | Emergency Room | 7.69 | 10.16 | 3.82 | 4.21 | 8.09 | 4.01 | 3.52 | 2.72 | 3.27 | 3.54 |
| | Other | 319.72 | 12.01 | 9.72 | 18.44 | 95.74 | 5.77 | 8.45 | 9.46 | 10.47 | 8.42 |
| | TOTAL | $875.96 | $40.33 | $182.26 | $27.24 | $281.58 | $ 49.44<br>(49.43) | $25.65<br>(25.51) | $36.22<br>(36.35) | $55.03<br>(55.22) | $39.04<br>(39.01) |

*Figures in parentheses exclude screen day costs.

## TABLE J-8: AVERAGE MONTHLY MEDICAID COSTS BEFORE AND AFTER CUTOFF DATE* (NOT ADJUSTED FOR ELIGIBILITY)

| | | BEFORE CUTOFF | | | | | AFTER CUTOFF | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ≤1 | 1-6 | 7-13 | 14-20 | Total | ≤1 | 1-6 | 7-13 | 14-20 | Total |
| NOT SCREENED | Office | $ 1.25 | $ 1.62 | $ 1.77 | $ 3.00 | $ 2.03 | $ 0.81 | $ 1.58 | $ 1.17 | $ 2.15 | $ 1.44 |
| | Hospital Inpatient | 38.06 | 4.09 | 0.66 | 12.91 | 9.43 | 9.88 | 5.35 | 1.57 | 15.67 | 7.80 |
| | Emergency Room | 0.52 | 1.02 | 0.65 | 1.53 | 1.00 | 0.78 | 1.17 | 0.46 | 0.67 | 0.78 |
| | Other | 0.59 | 2.11 | 3.05 | 7.27 | 3.73 | 0.78 | 2.09 | 2.97 | 3.65 | 2.41 |
| | TOTAL | $40.42 | $ 8.84 | $ 6.14 | $24.71 | $16.19 | $12.25 | $10.19 | $ 6.17 | $22.14 | $12.42 |
| SCREENED TOTAL | Office | $ 2.88 | $ 2.21 | $ 3.19 | $ 4.97 | $ 2.88 | $ 6.45<br>( 6.07)** | $ 5.97<br>( 5.36) | $ 5.47<br>( 4.59) | $ 6.25<br>( 5.58) | $ 6.12<br>( 5.56) |
| | Hospital Inpatient | 47.90 | 4.62 | 5.53 | 5.83 | 11.95 | 9.03 | 4.26 | 4.87 | 14.37 | 7.10 |
| | Emergency Room | 1.61 | 1.97 | 1.34 | 1.95 | 1.75 | 1.70 | 1.74 | 1.24 | 1.68 | 1.64 |
| | Other | 9.42 | 2.54 | 5.70 | 8.75 | 5.16 | 2.34 | 4.63 | 6.36 | 6.57 | 4.04 |
| | TOTAL | $61.80 | $11.34 | $15.76 | $21.49 | $21.74 | $19.52<br>(19.14) | $16.60<br>(15.99) | $17.93<br>(17.05) | $28.88<br>(28.20) | $18.90<br>(18.34) |
| SCREENED AND NOT MONITORIED | Office | $ 2.14 | $ 2.36 | $ 5.15 | $ 5.46 | $ 3.33 | $ 5.83<br>( 5.44) | $ 5.88<br>( 5.20) | $ 5.30<br>( 3.71) | $ 3.81<br>( 3.19) | $ 5.63<br>( 5.01) |
| | Hospital Inpatient | 31.52 | 6.73 | 0.15 | 13.19 | 13.47 | 8.08 | 5.55 | 4.78 | 5.12 | 6.91 |
| | Emergency Room | 1.51 | 1.22 | 1.39 | 2.53 | 1.54 | 1.70 | 2.28 | 1.20 | 1.50 | 1.75 |
| | Other | 1.10 | 2.10 | 8.27 | 9.56 | 4.19 | 2.23 | 3.44 | 4.74 | 4.74 | 2.99 |
| | TOTAL | $36.27 | $12.40 | $14.95 | $30.72 | $22.52 | $17.84<br>(17.45) | $17.15<br>(16.47) | $16.04<br>(14.45) | $15.18<br>(14.56) | $17.27<br>(16.65) |
| SCREENED AND MONITORED | Office | $ 3.98 | $ 2.16 | $ 2.46 | $ 4.58 | $ 2.66 | $ 7.12<br>( 6.75) | $ 6.00<br>( 5.41) | $ 5.55<br>( 4.96) | $ 7.96<br>( 7.24) | $ 6.42<br>( 5.90) |
| | Hospital Inpatient | 72.18 | 3.88 | 7.54 | 0.00 | 11.17 | 10.03 | 3.85 | 4.90 | 20.81 | 7.21 |
| | Emergency Room | 1.76 | 2.23 | 1.32 | 1.50 | 1.87 | 1.71 | 1.57 | 1.25 | 1.80 | 1.57 |
| | Other | 21.76 | 2.70 | 4.73 | 8.11 | 5.65 | 2.45 | 5.01 | 7.04 | 7.84 | 4.69 |
| | TOTAL | $99.67 | $10.97 | $16.06 | $14.18 | $21.34 | $21.31<br>(20.94) | $16.42<br>(15.84) | $18.74<br>(18.16) | $38.42<br>(37.70) | $19.89<br>(19.37) |

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*For screened children, the cutoff date was the date of the first screen after October 1, 1976. For unscreened children, it was October 31, 1977.

**Figures in parentheses exclude treatment costs incurred on the day of the screen.

TABLE J-9: STANDARD DEVIATIONS FOR TABLE J-8

| | | BEFORE CUTOFF | | | | | AFTER CUTOFF | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ≤1 | 1-6 | 7-13 | 14-20 | Total | ≤1 | 1-6 | 7-13 | 14-20 | Total |
| NOT SCREENED | Office | $ 2.46 | $ 3.33 | $ 3.83 | $ 5.08 | $ 4.04 | $ 1.55 | $ 3.29 | $ 2.55 | $ 4.47 | $ 3.20 |
| | Hospital Inpatient | 135.02 | 21.23 | 5.51 | 44.32 | 53.58 | 75.51 | 30.25 | 8.44 | 69.51 | 51.96 |
| | Emergency Room | 1.49 | 2.65 | 3.13 | 2.92 | 2.81 | 2.03 | 3.42 | 1.31 | 2.04 | 2.37 |
| | Other | 2.21 | 5.01 | 7.69 | 16.43 | 10.51 | 2.14 | 5.01 | 5.48 | 14.39 | 8.15 |
| | TOTAL | $136.06 | $23.56 | $12.39 | $55.33 | $57.43 | $77.25 | $34.04 | $11.97 | $83.06 | $57.83 |
| SCREENED TOTAL | Office | $ 5.28 | $ 5.26 | $ 4.81 | $ 6.89 | $ 5.44 | 5.02<br>( 4.94)* | 6.58<br>( 6.52) | 8.85<br>( 6.69) | 7.69<br>( 7.13) | 6.50<br>( 5.99) |
| | Hospital Inpatient | 300.70 | 22.14 | 53.83 | 32.03 | 125.91 | 25.79 | 13.88 | 30.98 | 40.54 | 25.00 |
| | Emergency Room | 4.46 | 4.74 | 2.81 | 3.68 | 4.18 | 2.88 | 2.83 | 2.48 | 2.78 | 2.80 |
| | Other | 129.36 | 5.83 | 7.61 | 12.98 | 52.42 | 3.59 | 6.29 | 7.99 | 7.77 | 5.99 |
| | TOTAL | $395.69 | $25.75 | $55.82 | $38.63 | $163.55 | $30.78<br>(30.74) | $20.72<br>(20.71) | $39.81<br>(37.54) | $45.44<br>(45.33) | $30.91<br>(30.43) |
| SCREENED AND NOT MONI-TORED | Office | $ 3.89 | $ 8.34 | $ 6.25 | $ 6.98 | $ 6.84 | $ 4.91<br>( 4.83) | $ 8.70<br>( 8.52) | $13.09<br>( 7.70) | $ 7.48<br>( 6.12) | $ 7.50<br>( 6.33) |
| | Hospital Inpatient | 240.63 | 21.69 | 1.05 | 47.21 | 130.89 | 23.42 | 18.87 | 33.53 | 23.48 | 24.10 |
| | Emergency Room | 4.65 | 2.39 | 3.20 | 4.18 | 3.62 | 3.27 | 3.95 | 2.47 | 2.83 | 3.33 |
| | Other | 2.27 | 7.25 | 9.19 | 13.15 | 8.71 | 4.13 | 5.29 | 8.28 | 6.66 | 5.37 |
| | TOTAL | $241.53 | $26.54 | $13.17 | $53.38 | $132.05 | $28.97<br>(28.91) | $25.89<br>(25.88) | $52.24<br>(46.16) | $31.09<br>(30.59) | $32.39<br>(31.15) |
| SCREENED AND MONI-TORED | Office | $ 6.69 | $ 3.63 | $ 3.91 | $ 6.80 | $ 4.56 | $ 5.06<br>( 4.98) | $ 5.75<br>( 5.74) | $ 6.22<br>( 6.17) | $ 7.38<br>( 7.33) | $ 5.78<br>( 5.75) |
| | Hospital Inpatient | 371.35 | 22.25 | 62.99 | 0.00 | 123.30 | 28.07 | 11.84 | 29.84 | 48.01 | 25.53 |
| | Emergency Room | 4.17 | 5.29 | 2.65 | 3.16 | 4.43 | 2.39 | 2.34 | 2.49 | 2.74 | 2.42 |
| | Other | 203.34 | 5.24 | 6.68 | 12.82 | 64.09 | 2.91 | 6.53 | 7.76 | 8.23 | 6.26 |
| | TOTAL | $548.00 | $25.47 | $64.95 | $17.38 | $177.46 | $32.52<br>(32.49) | $18.78<br>(18.77) | $33.11<br>(33.15) | $51.09<br>(51.16) | $29.93<br>(29.93) |

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*Figures in parentheses exclude treatment costs incurred on the day of the screen.

### Table J-10: Costs for Treating Specific Problems Reported at Screen

| TCDA GROUP | Description | N | Costs Before | Costs After |
|---|---|---|---|---|
| | **Problems Known to Parent Beforehand*** | | | |
| 380.0-389.0 | acute otitis | 58 | $ 4.09 | $27.97 |
| 462.0-466.0 | pharyngitis | 28 | 20.68 | 5.57 |
| Miscellaneous | miscelleneous | 34 | 17.18 | 18.62 |
| | **Problems Probably Found at Screening** | | | |
| 280.0 289.3 | anemias | 72 | $ 1.38 | $ 5.28 |
| Miscellaneous | miscellaneous | 21 | 5.48 | 36.05 |
| | **Problems Possibly Found at Screening** | | | |
| 381.1-381.9 | otitis | 8 | $ 5.50 | $85.12** |
| 460.0 | acute nasopharyngitis | 25 | 0.20 | 4.60 |
| 551.1 | umbilical hernia | 37 | 1.73 | 49.62 |
| 691.0 692.9 | exzema | 61 | 1.21 | 7.00 |
| Miscellaneous | miscellaneous | 17 | 20.71 | 0.00 |

*See Chapter 16 for a discussion of these categories.
**This is due to a single child with a treatment cost of $599.00.

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